

D \pm

$$I(J^P) = \frac{1}{2}(0^-)$$

D \pm MASS

The fit includes D^\pm , D^0 , D_s^\pm , $D^{*\pm}$, D^{*0} , $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1869.62 ± 0.15 OUR FIT		Error includes scale factor of 1.1.		
1869.5 ± 0.4 OUR AVERAGE				
1869.53 ± 0.49 ± 0.20	110 ± 15	ANASHIN	10A	KEDR $e^+ e^-$ at $\psi(3770)$
1870.0 ± 0.5 ± 1.0	317	BARLAG	90C	ACCM π^- Cu 230 GeV
1869.4 ± 0.6		1 TRILLING	81	RVUE $e^+ e^-$ 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1875 ± 10	9	ADAMOVICH	87	EMUL Photoproduction
1860 ± 16	6	ADAMOVICH	84	EMUL Photoproduction
1863 ± 4		DERRICK	84	HRS $e^+ e^-$ 29 GeV
1868.4 ± 0.5		1 SCHINDLER	81	MRK2 $e^+ e^-$ 3.77 GeV
1874 ± 5		GOLDHABER	77	MRK1 D^0 , D^+ recoil spectra
1868.3 ± 0.9		1 PERUZZI	77	LGW $e^+ e^-$ 3.77 GeV
1874 ± 11		PICCOLO	77	MRK1 $e^+ e^-$ 4.03, 4.41 GeV
1876 ± 15	50	PERUZZI	76	MRK1 $K^\mp \pi^\pm \pi^\pm$

¹ PERUZZI 77 and SCHINDLER 81 errors do not include the 0.13% uncertainty in the absolute SPEAR energy calibration. TRILLING 81 uses the high precision $J/\psi(1S)$ and $\psi(2S)$ measurements of ZHOLENTZ 80 to determine this uncertainty and combines the PERUZZI 77 and SCHINDLER 81 results to obtain the value quoted.

NODE=S031M

NODE=S031M

NODE=S031M

NODE=S031M;LINKAGE=P

D \pm MEAN LIFE

Measurements with an error $> 100 \times 10^{-15}$ s have been omitted from the Listings.

<u>VALUE (10^{-15} s)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1040 ± 7 OUR AVERAGE				
1039.4 ± 4.3 ± 7.0	110k	LINK	02F	FOCS γ nucleus, \approx 180 GeV
1033.6 ± 22.1 ± 9.9	3777	BONVICINI	99	CLEO $e^+ e^-$ \approx $\Gamma(4S)$
1048 ± 15 ± 11	9k	FRABETTI	94D	E687 $D^+ \rightarrow K^- \pi^+ \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1075 ± 40 ± 18	2455	FRABETTI	91	E687 γ Be, $D^+ \rightarrow K^- \pi^+ \pi^+$
1030 ± 80 ± 60	200	ALVAREZ	90	NA14 γ , $D^+ \rightarrow K^- \pi^+ \pi^+$
1050 ± 77 ± 72	317	2 BARLAG	90C	ACCM π^- Cu 230 GeV
1050 ± 80 ± 70	363	ALBRECHT	88I	ARG $e^+ e^-$ 10 GeV
1090 ± 30 ± 25	2992	RAAB	88	E691 Photoproduction

² BARLAG 90C estimates the systematic error to be negligible.

NODE=S031T

NODE=S031T

NODE=S031T

NODE=S031T;LINKAGE=BL

NODE=S031215;NODE=S031

NODE=S031

D $^+$ DECAY MODES

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K_S^0 modes, not as K^0 modes. Nearly always it is a K_S^0 that is measured, and interference between Cabibbo-allowed and doubly Cabibbo-suppressed modes can invalidate the assumption that $2\Gamma(K_S^0) = \Gamma(\bar{K}^0)$.

Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level

Inclusive modes				NODE=S031;CLUMP=A
Γ_1	$D^+ \rightarrow e^+$ semileptonic	(16.07 \pm 0.30) %		DESIG=7
Γ_2	$D^+ \rightarrow \mu^+$ anything	(17.6 \pm 3.2) %		DESIG=22
Γ_3	$D^+ \rightarrow K^-$ anything	(25.7 \pm 1.4) %		DESIG=8
Γ_4	$D^+ \rightarrow \bar{K}^0$ anything + K^0 anything	(61 \pm 5) %		DESIG=9
Γ_5	$D^+ \rightarrow K^+$ anything	(5.9 \pm 0.8) %		DESIG=10
Γ_6	$D^+ \rightarrow K^*(892)^-$ anything	(6 \pm 5) %		DESIG=248
Γ_7	$D^+ \rightarrow \bar{K}^*(892)^0$ anything	(23 \pm 5) %		DESIG=244
Γ_8	$D^+ \rightarrow K^*(892)^0$ anything	< 6.6 %	CL=90%	DESIG=245
Γ_9	$D^+ \rightarrow \eta$ anything	(6.3 \pm 0.7) %		DESIG=21
Γ_{10}	$D^+ \rightarrow \eta'$ anything	(1.04 \pm 0.18) %		DESIG=250
Γ_{11}	$D^+ \rightarrow \phi$ anything	(1.03 \pm 0.12) %		DESIG=219
Leptonic and semileptonic modes				NODE=S031;CLUMP=B
Γ_{12}	$D^+ \rightarrow e^+ \nu_e$	< 8.8 $\times 10^{-6}$	CL=90%	DESIG=6
Γ_{13}	$D^+ \rightarrow \mu^+ \nu_\mu$	(3.82 \pm 0.33) $\times 10^{-4}$		DESIG=20
Γ_{14}	$D^+ \rightarrow \tau^+ \nu_\tau$	< 1.2 $\times 10^{-3}$	CL=90%	DESIG=247
Γ_{15}	$D^+ \rightarrow \bar{K}^0 e^+ \nu_e$	(8.83 \pm 0.22) %		DESIG=71
Γ_{16}	$D^+ \rightarrow \bar{K}^0 \mu^+ \nu_\mu$	(9.2 \pm 0.6) %		DESIG=49
Γ_{17}	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$	(4.00 \pm 0.10) %		DESIG=34
Γ_{18}	$D^+ \rightarrow \bar{K}^*(892)^0 e^+ \nu_e, \bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(3.68 \pm 0.10) %		DESIG=81;OUR EVAL
Γ_{19}	$D^+ \rightarrow (K^- \pi^+)_{S-wave} e^+ \nu_e$	(2.32 \pm 0.10) $\times 10^{-3}$		DESIG=270
Γ_{20}	$D^+ \rightarrow \bar{K}^*(1410)^0 e^+ \nu_e, \bar{K}^*(1410)^0 \rightarrow K^- \pi^+$	< 6 $\times 10^{-3}$	CL=90%	DESIG=271
Γ_{21}	$D^+ \rightarrow \bar{K}_2^*(1430)^0 e^+ \nu_e, \bar{K}_2^*(1430)^0 \rightarrow K^- \pi^+$	< 5 $\times 10^{-4}$	CL=90%	DESIG=272
Γ_{22}	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$ nonresonant	< 7 $\times 10^{-3}$	CL=90%	DESIG=45
Γ_{23}	$D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$	(3.8 \pm 0.4) %		DESIG=184
Γ_{24}	$D^+ \rightarrow \bar{K}^*(892)^0 \mu^+ \nu_\mu, \bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(3.52 \pm 0.10) %		DESIG=185;OUR EVAL
Γ_{25}	$D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$ nonresonant	(2.0 \pm 0.5) $\times 10^{-3}$		DESIG=186
Γ_{26}	$D^+ \rightarrow K^- \pi^+ \pi^0 \mu^+ \nu_\mu$	< 1.6 $\times 10^{-3}$	CL=90%	DESIG=187
Γ_{27}	$D^+ \rightarrow \pi^0 e^+ \nu_e$	(4.05 \pm 0.18) $\times 10^{-3}$		DESIG=239
Γ_{28}	$D^+ \rightarrow \eta e^+ \nu_e$	(1.14 \pm 0.10) $\times 10^{-3}$		DESIG=265
Γ_{29}	$D^+ \rightarrow \rho^0 e^+ \nu_e$	(2.2 \pm 0.4) $\times 10^{-3}$		DESIG=154
Γ_{30}	$D^+ \rightarrow \rho^0 \mu^+ \nu_\mu$	(2.4 \pm 0.4) $\times 10^{-3}$		DESIG=188
Γ_{31}	$D^+ \rightarrow \omega e^+ \nu_e$	(1.6 $^{+0.7}_{-0.6}$) $\times 10^{-3}$		DESIG=240
Γ_{32}	$D^+ \rightarrow \eta'(958) e^+ \nu_e$	(2.2 \pm 0.5) $\times 10^{-4}$		DESIG=266
Γ_{33}	$D^+ \rightarrow \phi e^+ \nu_e$	< 9 $\times 10^{-5}$	CL=90%	DESIG=124
Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.				CLUMP=C;NODE=S031
Γ_{34}	$D^+ \rightarrow \bar{K}^*(892)^0 e^+ \nu_e$	(5.52 \pm 0.15) %		DESIG=44
Γ_{35}	$D^+ \rightarrow \bar{K}^*(892)^0 \mu^+ \nu_\mu$	(5.28 \pm 0.15) %		DESIG=179
Γ_{36}	$D^+ \rightarrow \bar{K}_0^*(1430)^0 \mu^+ \nu_\mu$	< 2.4 $\times 10^{-4}$		DESIG=242
Γ_{37}	$D^+ \rightarrow \bar{K}^*(1680)^0 \mu^+ \nu_\mu$	< 1.5 $\times 10^{-3}$		DESIG=243

Hadronic modes with a \bar{K} or $\bar{K}K\bar{K}$				
Γ_{38}	$D^+ \rightarrow K_S^0 \pi^+$	(1.47 ± 0.07) %	S=2.0	NODE=S031;CLUMP=D DESIG=2
Γ_{39}	$D^+ \rightarrow K_L^0 \pi^+$	(1.46 ± 0.05) %		DESIG=256
Γ_{40}	$D^+ \rightarrow K^- 2\pi^+$	[a] (9.13 ± 0.19) %		DESIG=1
Γ_{41}	$D^+ \rightarrow (K^- \pi^+)_{S-\text{wave}} \pi^+$	(7.32 ± 0.19) %		DESIG=251
Γ_{42}	$D^+ \rightarrow \bar{K}_0^*(800)^0 \pi^+,$ $\bar{K}_0^*(800) \rightarrow K^- \pi^+$			DESIG=230
Γ_{43}	$D^+ \rightarrow \bar{K}_0^*(1430)^0 \pi^+,$ $\bar{K}_0^*(1430)^0 \rightarrow K^- \pi^+$	[b] (1.21 ± 0.06) %		DESIG=191
Γ_{44}	$D^+ \rightarrow \bar{K}^*(892)^0 \pi^+,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.01 ± 0.11) %		DESIG=83
Γ_{45}	$D^+ \rightarrow \bar{K}^*(1410)^0 \pi^+,$ $\bar{K}^{*0} \rightarrow K^- \pi^+$	not seen		DESIG=147;OUR EVAL
Γ_{46}	$D^+ \rightarrow \bar{K}_2^*(1430)^0 \pi^+,$ $\bar{K}_2^*(1430)^0 \rightarrow K^- \pi^+$	[b] (2.2 ± 0.7) $\times 10^{-4}$		DESIG=232
Γ_{47}	$D^+ \rightarrow \bar{K}^*(1680)^0 \pi^+,$ $\bar{K}^*(1680)^0 \rightarrow K^- \pi^+$	[b] (2.1 ± 1.1) $\times 10^{-4}$		DESIG=192
Γ_{48}	$D^+ \rightarrow K^-(2\pi^+)_{I=2}$	(1.41 ± 0.26) %		DESIG=263
Γ_{49}	$D^+ \rightarrow K^- 2\pi^+ \text{ nonresonant}$			DESIG=28
Γ_{50}	$D^+ \rightarrow K_S^0 \pi^+ \pi^0$	[a] (6.99 ± 0.27) %		DESIG=12
Γ_{51}	$D^+ \rightarrow K_S^0 \rho^+$	(4.8 ± 1.0) %		DESIG=18
Γ_{52}	$D^+ \rightarrow \bar{K}^*(892)^0 \pi^+,$ $\bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0$	(1.3 ± 0.6) %		DESIG=82
Γ_{53}	$D^+ \rightarrow K_S^0 \pi^+ \pi^0 \text{ nonresonant}$	(9 ± 7) $\times 10^{-3}$		DESIG=27
Γ_{54}	$D^+ \rightarrow K^- 2\pi^+ \pi^0$	[c] (5.99 ± 0.18) %		DESIG=17
Γ_{55}	$D^+ \rightarrow K_S^0 2\pi^+ \pi^-$	[c] (3.12 ± 0.11) %		DESIG=13
Γ_{56}	$D^+ \rightarrow K^- 3\pi^+ \pi^-$	[a] (5.6 ± 0.5) $\times 10^{-3}$	S=1.1	DESIG=14
Γ_{57}	$D^+ \rightarrow \bar{K}^*(892)^0 2\pi^+ \pi^-,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.2 ± 0.4) $\times 10^{-3}$		DESIG=57
Γ_{58}	$D^+ \rightarrow \bar{K}^*(892)^0 \rho^0 \pi^+,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(2.2 ± 0.4) $\times 10^{-3}$		DESIG=58
Γ_{59}	$D^+ \rightarrow \bar{K}^*(892)^0 a_1(1260)^+$	[d] (9.0 ± 1.8) $\times 10^{-3}$		DESIG=233
Γ_{60}	$D^+ \rightarrow$ $\bar{K}^*(892)^0 2\pi^+ \pi^- \text{ no-}\rho,$ $\bar{K}^*(892)^0 \rightarrow K^- \pi^+$			DESIG=209
Γ_{61}	$D^+ \rightarrow K^- \rho^0 2\pi^+$	(1.68 ± 0.27) $\times 10^{-3}$		DESIG=206
Γ_{62}	$D^+ \rightarrow$ $K^- 3\pi^+ \pi^- \text{ nonresonant}$	(3.9 ± 2.9) $\times 10^{-4}$		DESIG=207
Γ_{63}	$D^+ \rightarrow K^+ 2K_S^0$	(4.5 ± 2.0) $\times 10^{-3}$		DESIG=59
Γ_{64}	$D^+ \rightarrow K^+ K^- K_S^0 \pi^+$	(2.4 ± 0.6) $\times 10^{-4}$		DESIG=227
Pionic modes				
Γ_{65}	$D^+ \rightarrow \pi^+ \pi^0$	(1.19 ± 0.06) $\times 10^{-3}$		NODE=S031;CLUMP=F DESIG=15
Γ_{66}	$D^+ \rightarrow 2\pi^+ \pi^-$	(3.18 ± 0.18) $\times 10^{-3}$		DESIG=3
Γ_{67}	$D^+ \rightarrow \rho^0 \pi^+$	(8.1 ± 1.5) $\times 10^{-4}$		DESIG=47
Γ_{68}	$D^+ \rightarrow \pi^+ (\pi^+ \pi^-)_{S-\text{wave}}$	(1.78 ± 0.16) $\times 10^{-3}$		DESIG=237
Γ_{69}	$D^+ \rightarrow \sigma \pi^+, \sigma \rightarrow \pi^+ \pi^-$	(1.34 ± 0.12) $\times 10^{-3}$		DESIG=221
Γ_{70}	$D^+ \rightarrow f_0(980) \pi^+,$ $f_0(980) \rightarrow \pi^+ \pi^-$	(1.52 ± 0.33) $\times 10^{-4}$		DESIG=222
Γ_{71}	$D^+ \rightarrow f_0(1370) \pi^+,$ $f_0(1370) \rightarrow \pi^+ \pi^-$	(8 ± 4) $\times 10^{-5}$		DESIG=224
Γ_{72}	$D^+ \rightarrow f_2(1270) \pi^+,$ $f_2(1270) \rightarrow \pi^+ \pi^-$	(4.9 ± 0.9) $\times 10^{-4}$		DESIG=228
Γ_{73}	$D^+ \rightarrow \rho(1450)^0 \pi^+,$ $\rho(1450)^0 \rightarrow \pi^+ \pi^-$	< 8 $\times 10^{-5}$	CL=95%	DESIG=225
Γ_{74}	$D^+ \rightarrow f_0(1500) \pi^+,$ $f_0(1500) \rightarrow \pi^+ \pi^-$	(1.1 ± 0.4) $\times 10^{-4}$		DESIG=252

Γ_{75}	$D^+ \rightarrow f_0(1710)\pi^+$, $f_0(1710) \rightarrow \pi^+\pi^-$	< 5	$\times 10^{-5}$	CL=95%	DESIG=253
Γ_{76}	$D^+ \rightarrow f_0(1790)\pi^+$, $f_0(1790) \rightarrow \pi^+\pi^-$	< 6	$\times 10^{-5}$	CL=95%	DESIG=254
Γ_{77}	$D^+ \rightarrow (\pi^+\pi^+)_{S\text{-wave}}\pi^-$	< 1.2	$\times 10^{-4}$	CL=95%	DESIG=255
Γ_{78}	$D^+ \rightarrow 2\pi^+\pi^-$ nonresonant	< 1.1	$\times 10^{-4}$	CL=95%	DESIG=46
Γ_{79}	$D^+ \rightarrow \pi^+2\pi^0$	(4.6 \pm 0.4) $\times 10^{-3}$			DESIG=246
Γ_{80}	$D^+ \rightarrow 2\pi^+\pi^-\pi^0$	(1.13 \pm 0.08) %			DESIG=50
Γ_{81}	$D^+ \rightarrow \eta\pi^+$, $\eta \rightarrow \pi^+\pi^-\pi^0$	(8.0 \pm 0.5) $\times 10^{-4}$			DESIG=84;OUR EVAL
Γ_{82}	$D^+ \rightarrow \omega\pi^+$, $\omega \rightarrow \pi^+\pi^-\pi^0$	< 3 $\times 10^{-4}$	CL=90%		DESIG=85;OUR EVAL
Γ_{83}	$D^+ \rightarrow 3\pi^+2\pi^-$	(1.61 \pm 0.16) $\times 10^{-3}$			DESIG=48

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

CLUMP=G;NODE=S031

Γ_{84}	$D^+ \rightarrow \eta\pi^+$	(3.53 \pm 0.21) $\times 10^{-3}$		DESIG=51
Γ_{85}	$D^+ \rightarrow \eta\pi^+\pi^0$	(1.38 \pm 0.35) $\times 10^{-3}$		DESIG=257
Γ_{86}	$D^+ \rightarrow \omega\pi^+$	< 3.4 $\times 10^{-4}$	CL=90%	DESIG=52
Γ_{87}	$D^+ \rightarrow \eta'(958)\pi^+$	(4.67 \pm 0.29) $\times 10^{-3}$		DESIG=90
Γ_{88}	$D^+ \rightarrow \eta'(958)\pi^+\pi^0$	(1.6 \pm 0.5) $\times 10^{-3}$		DESIG=258

Hadronic modes with a $K\bar{K}$ pair

Γ_{89}	$D^+ \rightarrow K^+K_S^0$	(2.83 \pm 0.16) $\times 10^{-3}$	S=2.2	NODE=S031;CLUMP=H
Γ_{90}	$D^+ \rightarrow K^+K^-\pi^+$	[a] (9.54 \pm 0.26) $\times 10^{-3}$	S=1.1	DESIG=4
Γ_{91}	$D^+ \rightarrow \phi\pi^+$, $\phi \rightarrow K^+K^-$	(2.65 \pm 0.08) $\times 10^{-3}$		DESIG=89
Γ_{92}	$D^+ \rightarrow K^+\bar{K}^*(892)^0$, $\bar{K}^*(892)^0 \rightarrow K^-\pi^+$	(2.45 \pm 0.09) $\times 10^{-3}$		DESIG=86
Γ_{93}	$D^+ \rightarrow K^+\bar{K}_0^*(1430)^0$, $\bar{K}_0^*(1430)^0 \rightarrow K^-\pi^+$	(1.79 \pm 0.34) $\times 10^{-3}$		DESIG=238
Γ_{94}	$D^+ \rightarrow K^+\bar{K}_2^*(1430)^0$, $\bar{K}_2^* \rightarrow K^-\pi^+$	(1.6 \pm 1.2) $\times 10^{-4}$		DESIG=259
Γ_{95}	$D^+ \rightarrow K^+\bar{K}_0^*(800)$, $\bar{K}_0^* \rightarrow K^-\pi^+$	(6.7 \pm 3.4) $\times 10^{-4}$		DESIG=260
Γ_{96}	$D^+ \rightarrow a_0(1450)^0\pi^+$, $a_0^0 \rightarrow K^+K^-$	(4.4 \pm 7.0) $\times 10^{-4}$		DESIG=261
Γ_{97}	$D^+ \rightarrow \phi(1680)\pi^+$, $\phi \rightarrow K^+K^-$	(4.9 \pm 4.0) $\times 10^{-5}$		DESIG=262
Γ_{98}	$D^+ \rightarrow K^+K^-\pi^+$ nonresonant	not seen		DESIG=26;OUR EVAL
Γ_{99}	$D^+ \rightarrow K^+K_S^0\pi^+\pi^-$	(1.75 \pm 0.18) $\times 10^{-3}$		DESIG=134
Γ_{100}	$D^+ \rightarrow K_S^0K^-2\pi^+$	(2.40 \pm 0.18) $\times 10^{-3}$		DESIG=130
Γ_{101}	$D^+ \rightarrow K^+K^-2\pi^+\pi^-$	(2.2 \pm 1.2) $\times 10^{-4}$		DESIG=88

A few poorly measured branching fractions:

Γ_{102}	$D^+ \rightarrow \phi\pi^+\pi^0$	(2.3 \pm 1.0) %		CLUMP=I;NODE=S031
Γ_{103}	$D^+ \rightarrow \phi\rho^+$	< 1.5 %	CL=90%	DESIG=53
Γ_{104}	$D^+ \rightarrow K^+K^-\pi^+\pi^0$ non- ϕ	(1.5 \pm 0.7) %		DESIG=93
Γ_{105}	$D^+ \rightarrow K^*(892)^+K_S^0$	(1.6 \pm 0.7) %		DESIG=54
				DESIG=197

Doubly Cabibbo-suppressed modes					
Γ_{106}	$D^+ \rightarrow K^+ \pi^0$		$(1.83 \pm 0.26) \times 10^{-4}$	S=1.4	NODE=S031;CLUMP=K DESIG=234
Γ_{107}	$D^+ \rightarrow K^+ \eta$		$(1.08 \pm 0.17) \times 10^{-4}$		DESIG=268
Γ_{108}	$D^+ \rightarrow K^+ \eta'(958)$		$(1.76 \pm 0.22) \times 10^{-4}$		DESIG=269
Γ_{109}	$D^+ \rightarrow K^+ \pi^+ \pi^-$		$(5.27 \pm 0.23) \times 10^{-4}$		DESIG=5
Γ_{110}	$D^+ \rightarrow K^+ \rho^0$		$(2.0 \pm 0.5) \times 10^{-4}$		DESIG=204
Γ_{111}	$D^+ \rightarrow K^*(892)^0 \pi^+,$ $K^*(892)^0 \rightarrow K^+ \pi^-$		$(2.5 \pm 0.4) \times 10^{-4}$		DESIG=205
Γ_{112}	$D^+ \rightarrow K^+ f_0(980),$ $f_0(980) \rightarrow \pi^+ \pi^-$		$(4.7 \pm 2.8) \times 10^{-5}$		DESIG=235
Γ_{113}	$D^+ \rightarrow K_2^*(1430)^0 \pi^+,$ $K_2^*(1430)^0 \rightarrow K^+ \pi^-$		$(4.2 \pm 2.9) \times 10^{-5}$		DESIG=236
Γ_{114}	$D^+ \rightarrow K^+ \pi^+ \pi^-$ nonresonant		not seen		DESIG=211;OUR EVAL
Γ_{115}	$D^+ \rightarrow 2K^+ K^-$		$(8.7 \pm 2.0) \times 10^{-5}$		DESIG=181
$\Delta C = 1$ weak neutral current (C1) modes, or Lepton Family number (LF) or Lepton number (L) violating modes					
Γ_{116}	$D^+ \rightarrow \pi^+ e^+ e^-$	C1	$< 1.1 \times 10^{-6}$	CL=90%	DESIG=41
Γ_{117}	$D^+ \rightarrow \pi^+ \phi, \phi \rightarrow e^+ e^-$	[e]	$(1.7 \pm 1.4) \times 10^{-6}$		DESIG=241
Γ_{118}	$D^+ \rightarrow \pi^+ \mu^+ \mu^-$	C1	$< 3.9 \times 10^{-6}$	CL=90%	DESIG=42
Γ_{119}	$D^+ \rightarrow \pi^+ \phi, \phi \rightarrow \mu^+ \mu^-$	[e]	$(1.8 \pm 0.8) \times 10^{-6}$		DESIG=264
Γ_{120}	$D^+ \rightarrow \rho^+ \mu^+ \mu^-$	C1	$< 5.6 \times 10^{-4}$	CL=90%	DESIG=198
Γ_{121}	$D^+ \rightarrow K^+ e^+ e^-$	[f]	$< 1.0 \times 10^{-6}$	CL=90%	DESIG=113
Γ_{122}	$D^+ \rightarrow K^+ \mu^+ \mu^-$	[f]	$< 4.3 \times 10^{-6}$	CL=90%	DESIG=114
Γ_{123}	$D^+ \rightarrow \pi^+ e^+ \mu^-$	LF	$< 2.9 \times 10^{-6}$	CL=90%	DESIG=110
Γ_{124}	$D^+ \rightarrow \pi^+ e^- \mu^+$	LF	$< 3.6 \times 10^{-6}$	CL=90%	DESIG=111
Γ_{125}	$D^+ \rightarrow K^+ e^+ \mu^-$	LF	$< 1.2 \times 10^{-6}$	CL=90%	DESIG=115
Γ_{126}	$D^+ \rightarrow K^+ e^- \mu^+$	LF	$< 2.8 \times 10^{-6}$	CL=90%	DESIG=116
Γ_{127}	$D^+ \rightarrow \pi^- 2e^+$	L	$< 1.1 \times 10^{-6}$	CL=90%	DESIG=117
Γ_{128}	$D^+ \rightarrow \pi^- 2\mu^+$	L	$< 2.0 \times 10^{-6}$	CL=90%	DESIG=118
Γ_{129}	$D^+ \rightarrow \pi^- e^+ \mu^+$	L	$< 2.0 \times 10^{-6}$	CL=90%	DESIG=119
Γ_{130}	$D^+ \rightarrow \rho^- 2\mu^+$	L	$< 5.6 \times 10^{-4}$	CL=90%	DESIG=199
Γ_{131}	$D^+ \rightarrow K^- 2e^+$	L	$< 9 \times 10^{-7}$	CL=90%	DESIG=120
Γ_{132}	$D^+ \rightarrow K^- 2\mu^+$	L	$< 1.0 \times 10^{-5}$	CL=90%	DESIG=121
Γ_{133}	$D^+ \rightarrow K^- e^+ \mu^+$	L	$< 1.9 \times 10^{-6}$	CL=90%	DESIG=122
Γ_{134}	$D^+ \rightarrow K^*(892)^- 2\mu^+$	L	$< 8.5 \times 10^{-4}$	CL=90%	DESIG=200
Γ_{135}	Unaccounted decay modes		$(51.2 \pm 1.0) \%$		NODE=S031;CLUMP=Z DESIG=19
<p>[a] The branching fraction for this mode may differ from the sum of the submodes that contribute to it, due to interference effects. See the relevant papers.</p>					
<p>[b] These subfractions of the $K^- 2\pi^+$ mode are uncertain: see the Particle Listings.</p>					
<p>[c] Submodes of the $D^+ \rightarrow K^- 2\pi^+ \pi^0$ and $K_S^0 2\pi^+ \pi^-$ modes were studied by ANJOS 92C and COFFMAN 92B, but with at most 142 events for the first mode and 229 for the second – not enough for precise results. With nothing new for 18 years, we refer to our 2008 edition, Physics Letters B667 1 (2008), for those results.</p>					
<p>[d] The unseen decay modes of the resonances are included.</p>					
<p>[e] This is <i>not</i> a test for the $\Delta C=1$ weak neutral current, but leads to the $\pi^+ \ell^+ \ell^-$ final state.</p>					
<p>[f] This mode is not a useful test for a $\Delta C=1$ weak neutral current because both quarks must change flavor in this decay.</p>					

CONSTRAINED FIT INFORMATION

An overall fit to 22 branching ratios uses 31 measurements and one constraint to determine 15 parameters. The overall fit has a $\chi^2 = 32.1$ for 17 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_{29}	0								
x_{34}	0	3							
x_{35}	22	0	0						
x_{38}	6	0	0	1					
x_{40}	15	0	0	3	44				
x_{50}	5	0	0	1	14	31			
x_{54}	6	0	0	1	18	40	56		
x_{55}	7	0	0	2	22	50	50	0	
x_{56}	3	0	0	1	10	24	7	10	12
x_{83}	3	0	0	1	10	22	7	9	11
x_{89}	6	0	0	1	75	38	12	15	19
x_{90}	10	0	0	2	29	66	24	38	36
x_{106}	2	0	0	0	6	13	4	5	6
x_{135}	-75	-4	-15	-32	-32	-58	-54	-48	-42
	x_{16}	x_{29}	x_{34}	x_{35}	x_{38}	x_{40}	x_{50}	x_{54}	x_{56}
x_{89}		8							
x_{90}		14	25						
x_{106}		3	5	9					
x_{135}		-18	-27	-43	-8				
	x_{83}	x_{89}	x_{90}	x_{106}					

D^+ BRANCHING RATIOS

Some now-obsolete measurements have been omitted from these Listings.

— c-quark decays —

$\Gamma(c \rightarrow e^+ \text{anything})/\Gamma(c \rightarrow \text{anything})$

For the Summary Table, we only use the average of e^+ and μ^+ measurements from $Z^0 \rightarrow c\bar{c}$ decays; see the second data block below.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$0.103 \pm 0.009^{+0.009}_{-0.008}$	378	³ ABBIENDI	99K OPAL	$Z^0 \rightarrow c\bar{c}$

3 ABBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \rightarrow D^0 \pi^+$ decays in $Z^0 \rightarrow c\bar{c}$.

$\Gamma(c \rightarrow \mu^+ \text{anything})/\Gamma(c \rightarrow \text{anything})$

For the Summary Table, we only use the average of e^+ and μ^+ measurements from $Z^0 \rightarrow c\bar{c}$ decays; see the next data block.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.082 ± 0.005 OUR AVERAGE				
$0.073 \pm 0.008 \pm 0.002$	73	KAYIS-TOPAK.05	CHRS	ν_μ emulsion
$0.095 \pm 0.007^{+0.014}_{-0.013}$	2829	ASTIER	00D NOMD	ν_μ Fe $\rightarrow \mu^- \mu^+ X$
$0.090 \pm 0.007^{+0.007}_{-0.006}$	476	⁴ ABBIENDI	99K OPAL	$Z^0 \rightarrow c\bar{c}$
$0.086 \pm 0.017^{+0.008}_{-0.007}$	69	⁵ ALBRECHT	92F ARG	$e^+ e^- \approx 10$ GeV

NODE=S031220

NODE=S031220

NODE=S031305

NODE=S031B93

NODE=S031B93

NODE=S031B93

NODE=S031B93;LINKAGE=KB

NODE=S031R6

NODE=S031R6

NODE=S031R6

$0.078 \pm 0.009 \pm 0.012$	ONG	88	MRK2	$e^+ e^-$	29 GeV
$0.078 \pm 0.015 \pm 0.02$	BARTEL	87	JADE	$e^+ e^-$	34.6 GeV
$0.082 \pm 0.012^{+0.02}_{-0.01}$	ALTHOFF	84G	TASS	$e^+ e^-$	34.5 GeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.093 \pm 0.009 \pm 0.009$	88	KAYIS-TOPAK.02	CHRS	See KAYIS-TOPAKSU 05	
$0.089 \pm 0.018 \pm 0.025$		BARTEL	85J	JADE	See BARTEL 87

⁴ ALBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \rightarrow D^0 \pi^+$ decays in $Z^0 \rightarrow c\bar{c}$.

⁵ ALBRECHT 92F uses the excess of right-sign over wrong-sign leptons in a sample of events tagged by fully reconstructed $D^*(2010)^+ \rightarrow D^0 \pi^+$ decays.

$\Gamma(c \rightarrow \ell^+ \text{anything})/\Gamma(c \rightarrow \text{anything})$

This is an average (not a sum) of e^+ and μ^+ measurements.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.096 ± 0.004 OUR AVERAGE				
$0.0958 \pm 0.0042 \pm 0.0028$	1828	6 ABREU	000 DLPH	$Z^0 \rightarrow c\bar{c}$
$0.095 \pm 0.006^{+0.007}_{-0.006}$	854	7 ALBIENDI	99K OPAL	$Z^0 \rightarrow c\bar{c}$

⁶ ABREU 000 uses leptons opposite fully reconstructed $D^*(2010)^+$, D^+ , or D^0 mesons.

⁷ ALBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \rightarrow D^0 \pi^+$ decays in $Z^0 \rightarrow c\bar{c}$.

$\Gamma(c \rightarrow D^*(2010)^+ \text{anything})/\Gamma(c \rightarrow \text{anything})$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.255 ± 0.015 ± 0.008	2371	8 ABREU	000 DLPH	$Z^0 \rightarrow c\bar{c}$

⁸ ABREU 000 uses slow pions opposite fully reconstructed $D^*(2010)^+$, D^+ , or D^0 mesons as a signal of $D^*(2010)^-$ production.

Inclusive modes

$\Gamma(e^+ \text{semileptonic})/\Gamma_{\text{total}}$

Γ_1/Γ

The sum of our $\bar{K}^0 e^+ \nu_e$, $\bar{K}^*(892)^0 e^+ \nu_e$, $\pi^0 e^+ \nu_e$, $\eta e^+ \nu_e$, $\rho^0 e^+ \nu_e$, and $\omega e^+ \nu_e$ branching fractions is $15.3 \pm 0.4\%$.

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
16.07 ± 0.30 OUR AVERAGE				

$16.13 \pm 0.10 \pm 0.29$	$26.2 \pm 0.2k$	9 ASNER	10 CLEO	$e^+ e^-$ at 3774 MeV
$15.2 \pm 0.9 \pm 0.8$	521 ± 32	ABLIKIM	07G BES2	$e^+ e^- \approx \psi(3770)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$16.13 \pm 0.20 \pm 0.33$	8798 ± 105	10 ADAM	06A CLEO	See ASNER 10
$17.0 \pm 1.9 \pm 0.7$	158	BALTRUSAIT..85B MRK3	$e^+ e^-$	3.77 GeV

⁹ Using the D^+ and D^0 lifetimes, ASNER 10 finds that the ratio of the D^+ and D^0 semileptonic widths is $0.985 \pm 0.015 \pm 0.024$.

¹⁰ Using the D^+ and D^0 lifetimes, ADAM 06A finds that the ratio of the D^+ and D^0 inclusive e^+ widths is $0.985 \pm 0.028 \pm 0.015$, consistent with the isospin-invariance prediction of 1.

$\Gamma(\mu^+ \text{anything})/\Gamma_{\text{total}}$

Γ_2/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
17.6 ± 2.7 ± 1.8	100 ± 12	11 ABLIKIM	08L BES2	$e^+ e^- \approx \psi(3772)$

¹¹ ABLIKIM 08L finds the ratio of $D^+ \rightarrow \mu^+ X$ and $D^0 \rightarrow \mu^+ X$ branching fractions to be $2.59 \pm 0.70 \pm 0.25$, in accord with the ratio of D^+ and D^0 lifetimes, 2.54 ± 0.02 .

$\Gamma(K^- \text{anything})/\Gamma_{\text{total}}$

Γ_3/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
25.7 ± 1.4 OUR AVERAGE				

$24.7 \pm 1.3 \pm 1.2$	631 ± 33	ABLIKIM	07G BES2	$e^+ e^- \approx \psi(3770)$
$27.8^{+3.6}_{-3.1}$		BARLAG	92C ACCM	$\pi^- \text{ Cu}$ 230 GeV
$27.1 \pm 2.3 \pm 2.4$		COFFMAN	91 MRK3	$e^+ e^-$ 3.77 GeV

$[\Gamma(\bar{K}^0 \text{anything}) + \Gamma(K^0 \text{anything})]/\Gamma_{\text{total}}$

Γ_4/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
61 ± 5 OUR AVERAGE				

$60.5 \pm 5.5 \pm 3.3$	244 ± 22	ABLIKIM	06U BES2	$e^+ e^-$ at 3773 MeV
$61.2 \pm 6.5 \pm 4.3$		COFFMAN	91 MRK3	$e^+ e^-$ 3.77 GeV

NODE=S031R6;LINKAGE=KB

NODE=S031R6;LINKAGE=E

NODE=S031B94

NODE=S031B94

NODE=S031B94

NODE=S031B94;LINKAGE=A

NODE=S031B94;LINKAGE=KB

NODE=S031C3

NODE=S031C3

NODE=S031C3;LINKAGE=A

NODE=S031310

NODE=S031R5

NODE=S031R5

NODE=S031R5

NODE=S031R5;LINKAGE=AS

NODE=S031R5;LINKAGE=AD

NODE=S031R02

NODE=S031R02

NODE=S031R02;LINKAGE=AB

NODE=S031R1

NODE=S031R1

NODE=S031R3

NODE=S031R3

$\Gamma(K^+ \text{anything})/\Gamma_{\text{total}}$					Γ_5/Γ	NODE=S031R2 NODE=S031R2
VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT		
5.9±0.8 OUR AVERAGE						
6.1±0.9±0.4	189 ± 27	ABLIKIM	07G BES2	$e^+ e^- \approx \psi(3770)$		
5.5±1.3±0.9		COFFMAN	91 MRK3	$e^+ e^- \approx 3.77 \text{ GeV}$		
$\Gamma(K^*(892)^- \text{anything})/\Gamma_{\text{total}}$					Γ_6/Γ	NODE=S031R41 NODE=S031R41
VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT		
5.7±5.2±0.7	7.2 ± 6.5	ABLIKIM	06U BES2	$e^+ e^- \text{ at } 3773 \text{ MeV}$		
$\Gamma(\bar{K}^*(892)^0 \text{anything})/\Gamma_{\text{total}}$					Γ_7/Γ	NODE=S031C20 NODE=S031C20
VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT		
23.2±4.5±3.0	189 ± 36	ABLIKIM	05P BES	$e^+ e^- \approx 3773 \text{ MeV}$		
$\Gamma(K^*(892)^0 \text{anything})/\Gamma_{\text{total}}$					Γ_8/Γ	NODE=S031C21 NODE=S031C21
VALUE (%)	CL%	DOCUMENT ID	TECN	COMMENT		
<6.6	90	ABLIKIM	05P BES	$e^+ e^- \approx 3773 \text{ MeV}$		
$\Gamma(\eta \text{ anything})/\Gamma_{\text{total}}$					Γ_9/Γ	NODE=S031R43 NODE=S031R43 NODE=S031R43
This ratio includes η particles from η' decays.						
VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT		
6.3±0.5±0.5	1972 ± 142	HUANG	06B CLEO	$e^+ e^- \text{ at } \psi(3770)$		
$\Gamma(\eta' \text{ anything})/\Gamma_{\text{total}}$					Γ_{10}/Γ	NODE=S031R44 NODE=S031R44
VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT		
1.04±0.16±0.09	82 ± 13	HUANG	06B CLEO	$e^+ e^- \text{ at } \psi(3770)$		
$\Gamma(\phi \text{ anything})/\Gamma_{\text{total}}$					Γ_{11}/Γ	NODE=S031B95 NODE=S031B95
VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT		
1.03±0.10±0.07	248 ± 21	HUANG	06B CLEO	$e^+ e^- \text{ at } \psi(3770)$		
Leptonic and semileptonic modes						NODE=S031315
$\Gamma(e^+ \nu_e)/\Gamma_{\text{total}}$					Γ_{12}/Γ	NODE=S031R7 NODE=S031R7
VALUE	CL%	DOCUMENT ID	TECN	COMMENT		
<8.8 × 10⁻⁶	90	EISENSTEIN	08 CLEO	$e^+ e^- \text{ at } \psi(3770)$		
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<2.4 \times 10^{-5}$	90	ARTUSO	05A CLEO	See EISENSTEIN 08		
$\Gamma(\mu^+ \nu_\mu)/\Gamma_{\text{total}}$					Γ_{13}/Γ	NODE=S031R8 NODE=S031R8 NODE=S031R8
See the note on "Decay Constants of Charged Pseudoscalar Mesons" in the D_s^+ Listings.						
VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT		
3.82±0.32±0.09	150 ± 12	12 EISENSTEIN	08 CLEO	$e^+ e^- \text{ at } \psi(3770)$		
• • • We do not use the following data for averages, fits, limits, etc. • • •						
12.2 $\pm^{+11.1}_{-5.3}$ ± 1.0	3	13 ABLIKIM	05D BES	$e^+ e^- \approx 3.773 \text{ GeV}$		
4.40 $\pm^{+0.09}_{-0.12}$ ± 0.09	47 ± 7	14 ARTUSO	05A CLEO	See EISENSTEIN 08		
3.5 ± 1.4 ± 0.6	7	15 BONVICINI	04A CLEO	Incl. in ARTUSO 05A		
8 \pm^{+16}_{-5} \pm^{+5}_{-2}	1	16 BAI	98B BES	$e^+ e^- \rightarrow D^*+D^-$		
12 EISENSTEIN 08, using the D^+ lifetime and assuming $ V_{cd} = V_{us} $, gets $f_{D^+} = (205.8 \pm 8.5 \pm 2.5) \text{ MeV}$ from this measurement.						NODE=S031R8;LINKAGE=EI
13 ABLIKIM 05D finds a background-subtracted $2.67 \pm 1.74 D^+ \rightarrow \mu^+ \nu_\mu$ events, and from this obtains $f_{D^+} = 371^{+129}_{-119} \pm 25 \text{ MeV}$.						NODE=S031R8;LINKAGE=AB
14 ARTUSO 05A obtains $f_{D^+} = 222.6 \pm 16.7^{+2.8}_{-3.4} \text{ MeV}$ from this measurement.						NODE=S031R8;LINKAGE=AR NODE=S031R8;LINKAGE=BO
15 BONVICINI 04A finds eight events with an estimated background of one, and from the branching fraction obtains $f_{D^+} = 202 \pm 41 \pm 17 \text{ MeV}$.						
16 BAI 98B obtains $f_{D^+} = (300^{+180}_{-150}{}^{+80}_{-40}) \text{ MeV}$ from this measurement.						NODE=S031R8;LINKAGE=C
$\Gamma(\tau^+ \nu_\tau)/\Gamma_{\text{total}}$					Γ_{14}/Γ	NODE=S031R40 NODE=S031R40
VALUE	CL%	DOCUMENT ID	TECN	COMMENT		
<1.2 × 10⁻³	90	EISENSTEIN	08 CLEO	$e^+ e^- \text{ at } \psi(3770)$		
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<2.1 \times 10^{-3}$	90	RUBIN	06A CLEO	See EISENSTEIN 08		

$\Gamma(\bar{K}^0 e^+ \nu_e)/\Gamma_{\text{total}}$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{15}/Γ
8.83±0.22 OUR AVERAGE					
8.83±0.10±0.20	8467	17 BESSON	09 CLEO	$e^+ e^-$ at $\psi(3770)$	NODE=S031R93
8.95±1.59±0.67	34 ± 6	18 ABLIKIM	05A BES	$e^+ e^-$ at $\psi(3770)$	NODE=S031R93
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.53±0.13±0.23	19 DOBBS	08 CLEO		See BESSON 09	
8.71±0.38±0.37	545 ± 24	HUANG	05B CLEO	See DOBBS 08	
17 See the form-factor parameters near the end of this D^+ Listing.					
18 The ABLIKIM 05A result together with the $D^0 \rightarrow K^- e^+ \nu_e$ branching fraction of ABLIKIM 04C and Particle Data Group lifetimes gives $\Gamma(D^0 \rightarrow K^- e^+ \nu_e) / \Gamma(D^+ \rightarrow \bar{K}^0 e^+ \nu_e) = 1.08 \pm 0.22 \pm 0.07$; isospin invariance predicts the ratio is 1.0.					
19 DOBBS 08 establishes $ \frac{V_{cd}}{V_{cs}} \cdot \frac{f_+(0)}{f_+^K(0)} = 0.188 \pm 0.008 \pm 0.002$ from the D^+ and D^0 decays to $\bar{K} e^+ \nu_e$ and $\pi e^+ \nu_e$. It also finds $\Gamma(D^0 \rightarrow K^- e^+ \nu_e) / \Gamma(D^+ \rightarrow \bar{K}^0 e^+ \nu_e) = 1.06 \pm 0.02 \pm 0.03$; isospin invariance predicts the ratio is 1.0.					

 $\Gamma(\bar{K}^0 \mu^+ \nu_\mu)/\Gamma_{\text{total}}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{16}/Γ
0.092±0.006 OUR FIT					
0.103±0.023±0.008	29 ± 6	ABLIKIM	07 BES2	$e^+ e^-$ at 3773 MeV	

 $\Gamma(\bar{K}^0 \mu^+ \nu_\mu)/\Gamma(K^- 2\pi^+)$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{16}/Γ_{40}
1.00 ± 0.07 OUR FIT					
1.019±0.076±0.065	555 ± 39	LINK	04E FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV	

 $\Gamma(K^- \pi^+ e^+ \nu_e)/\Gamma_{\text{total}}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{17}/Γ
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.50±0.75±0.27	29 ± 6	ABLIKIM	060 BES2	$e^+ e^-$ at 3773 MeV	
3.5 ± 1.2 ± 0.4	14	BAI	91 MRK3	$e^+ e^- \approx 3.77$ GeV	

 $\Gamma(K^- \pi^+ e^+ \nu_e)/\Gamma(K^- 2\pi^+)$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{17}/Γ_{40}
0.4380±0.0036±0.0042	70k±363	DEL-AMO-SA..11I	BABR	$e^+ e^- \approx 10.6$ GeV	

 $\Gamma(\bar{K}^*(892)^0 e^+ \nu_e)/\Gamma_{\text{total}}$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{34}/Γ
5.52±0.15 OUR FIT					
5.52±0.07±0.13	≈ 5k	BRIERE	10 CLEO	$e^+ e^-$ at $\psi(3770)$	

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{34}/Γ_{40}
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.06±1.21±0.40	28 ± 7	ABLIKIM	060 BES2	$e^+ e^-$ at 3773 MeV	
5.56±0.27±0.23	422 ± 21	20 HUANG	05B CLEO	$e^+ e^-$ at $\psi(3770)$	
20 HUANG 05B finds $\Gamma(D^0 \rightarrow K^{*-} e^+ \nu_e) / \Gamma(D^+ \rightarrow \bar{K}^{*0} e^+ \nu_e) = 0.98 \pm 0.08 \pm 0.04$; isospin invariance predicts the ratio is 1.0.					

 $\Gamma(\bar{K}^*(892)^0 e^+ \nu_e)/\Gamma(K^- 2\pi^+)$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{34}/Γ_{40}
5.52±0.15 OUR FIT					
5.52±0.07±0.13	≈ 5k	BRIERE	10 CLEO	$e^+ e^-$ at $\psi(3770)$	

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{34}/Γ_{40}
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.74±0.04±0.05		BRANDENB.. 02	CLEO	$e^+ e^- \approx \gamma(4S)$	
0.62±0.15±0.09	35	ADAMOVICH 91	OMEG	π^- 340 GeV	
0.55±0.08±0.10	880	ALBRECHT 91	ARG	$e^+ e^- \approx 10.4$ GeV	
0.49±0.04±0.05		ANJOS 89B	E691	Photoproduction	

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT	Γ_{18}/Γ_{17}
94.11±0.74±0.75					
94.11±0.74±0.75		DEL-AMO-SA..11I	BABR	$e^+ e^- \approx 10.6$ GeV	

$\Gamma((K^-\pi^+)_{S-wave} e^+ \nu_e)/\Gamma(K^-\pi^+ e^+ \nu_e)$					Γ_{19}/Γ_{17}	NODE=S031B04 NODE=S031B04
VALUE (%)	DOCUMENT ID	TECN	COMMENT			
5.79±0.16±0.15	DEL-AMO-SA..11I	BABR	$e^+ e^- \approx 10.6$ GeV			
$\Gamma(\bar{K}^*(1410)^0 e^+ \nu_e, \bar{K}^*(1410)^0 \rightarrow K^-\pi^+)/\Gamma_{total}$					Γ_{20}/Γ	NODE=S031B05 NODE=S031B05
VALUE	CL%	DOCUMENT ID	TECN	COMMENT		
$<6 \times 10^{-3}$	90	DEL-AMO-SA..11I	BABR	$e^+ e^- \approx 10.6$ GeV		
$\Gamma(\bar{K}_2^*(1430)^0 e^+ \nu_e, \bar{K}_2^*(1430)^0 \rightarrow K^-\pi^+)/\Gamma_{total}$					Γ_{21}/Γ	NODE=S031B06 NODE=S031B06
VALUE	CL%	DOCUMENT ID	TECN	COMMENT		
$<5 \times 10^{-4}$	90	DEL-AMO-SA..11I	BABR	$e^+ e^- \approx 10.6$ GeV		
$\Gamma(K^-\pi^+ e^+ \nu_e \text{ nonresonant})/\Gamma_{total}$					Γ_{22}/Γ	NODE=S031R59 NODE=S031R59
VALUE	CL%	DOCUMENT ID	TECN	COMMENT		
<0.007	90	ANJOS	89B	E691	Photoproduction	
$\Gamma(K^-\pi^+ \mu^+ \nu_\mu)/\Gamma(\bar{K}^0 \mu^+ \nu_\mu)$					Γ_{23}/Γ_{16}	NODE=S031S02 NODE=S031S02
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT		
0.417±0.030±0.023	555 ± 39	LINK	04E	FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV	
$\Gamma(\bar{K}^*(892)^0 \mu^+ \nu_\mu)/\Gamma_{total}$					Γ_{35}/Γ	NODE=S031C36 NODE=S031C36
VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT		
5.28±0.15 OUR FIT						
5.27±0.07±0.14	$\approx 5k$	BRIERE	10	CLEO	$e^+ e^-$ at $\psi(3770)$	
$\Gamma(\bar{K}^*(892)^0 \mu^+ \nu_\mu)/\Gamma(\bar{K}^0 \mu^+ \nu_\mu)$					Γ_{35}/Γ_{16}	NODE=S031S03 NODE=S031S03
Unseen decay modes of the $\bar{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \rightarrow \bar{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.						
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT		
0.58 ± 0.04 OUR FIT						NODE=S031S03
0.594±0.043±0.033	555 ± 39	LINK	04E	FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV	
$\Gamma(\bar{K}^*(892)^0 \mu^+ \nu_\mu)/\Gamma(K^-\pi^+)$					Γ_{35}/Γ_{40}	NODE=S031B51 NODE=S031B51
Unseen decay modes of the $\bar{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \rightarrow \bar{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.						
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT		
0.578±0.021 OUR FIT	Error includes scale factor of 1.1.					NODE=S031B51
0.57 ± 0.06 OUR AVERAGE	Error includes scale factor of 1.2.					
0.72 ± 0.10 ± 0.05	BRANDENB...	02	CLEO	$e^+ e^- \approx \gamma(4S)$		
0.56 ± 0.04 ± 0.06	FRABETTI	93E	E687	γ Be $\bar{E}_\gamma \approx 200$ GeV		
0.46 ± 0.07 ± 0.08	KODAMA	92C	E653	π^- emulsion 600 GeV		
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.602 $\pm 0.010 \pm 0.021$	12k	21	LINK	02J	FOCS γ nucleus, ≈ 180 GeV	
21 This LINK 02J result includes the effects of an interference of a small S -wave $K^-\pi^+$ amplitude with the dominant \bar{K}^{*0} amplitude. (The interference effect is reported in LINK 02E.) This result is redundant with results of LINK 04E elsewhere in these Listings.						NODE=S031B51;LINKAGE=BQ
$\Gamma(K^-\pi^+ \mu^+ \nu_\mu \text{ nonresonant})/\Gamma(K^-\pi^+ \mu^+ \nu_\mu)$					Γ_{25}/Γ_{23}	NODE=S031B52 NODE=S031B52
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT		
0.0530±0.0074±0.0099	14k	LINK	05I	FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV	
$\Gamma(K^-\pi^+ \pi^0 \mu^+ \nu_\mu)/\Gamma(K^-\pi^+ \mu^+ \nu_\mu)$					Γ_{26}/Γ_{23}	NODE=S031B53 NODE=S031B53
VALUE	CL%	DOCUMENT ID	TECN	COMMENT		
<0.042	90	FRABETTI	93E	E687	γ Be $\bar{E}_\gamma \approx 200$ GeV	
$\Gamma(\bar{K}_0^*(1430)^0 \mu^+ \nu_\mu)/\Gamma(K^-\pi^+ \mu^+ \nu_\mu)$					Γ_{36}/Γ_{23}	NODE=S031C18 NODE=S031C18
Unseen decay modes of the $\bar{K}_0^*(1430)^0$ are included.						
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT		
<0.0064	90	LINK	05I	FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV	

$\Gamma(\bar{K}^*(1680)^0 \mu^+ \nu_\mu) / \Gamma(K^- \pi^+ \mu^+ \nu_\mu)$ Γ_{37}/Γ_{23} Unseen decay modes of the $\bar{K}^*(1680)^0$ are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
<0.04	90	LINK	05I	FOCS γ nucleus, $\bar{E}_\gamma \approx 180$ GeV

 $\Gamma(\pi^0 e^+ \nu_e) / \Gamma_{\text{total}}$ Γ_{27}/Γ

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
0.405 ± 0.016 ± 0.009	838	22 BESSON 09	CLEO	$e^+ e^-$ at $\psi(3770)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.373 ± 0.022 ± 0.013	23 DOBBS 08	CLEO	See BESSON 09
0.44 ± 0.06 ± 0.03	63 ± 9	HUANG 05B	CLEO See DOBBS 08

22 See the form-factor parameters near the end of this D^+ Listing.

23 DOBBS 08 establishes $|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}| = 0.188 \pm 0.008 \pm 0.002$ from the D^+ and D^0 decays to $\bar{K}e^+\nu_e$ and $\pi e^+\nu_e$. It finds $\Gamma(D^0 \rightarrow \pi^- e^+ \nu_e) / \Gamma(D^+ \rightarrow \pi^0 e^+ \nu_e) = 2.03 \pm 0.14 \pm 0.08$; isospin invariance predicts the ratio is 2.0.

 $\Gamma(\eta e^+ \nu_e) / \Gamma_{\text{total}}$ Γ_{28}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
11.4 ± 0.9 ± 0.4		YELTON	11	CLEO $e^+ e^-$ at $\psi(3770)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

13.3 ± 2.0 ± 0.6	46 ± 8	MITCHELL	09B	CLEO See YELTON 11
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 $\Gamma(\rho^0 e^+ \nu_e) / \Gamma_{\text{total}}$ Γ_{29}/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0022 ± 0.0004 OUR FIT				
0.0021 ± 0.0004 ± 0.0001	27 ± 6	24 HUANG	05B	CLEO $e^+ e^-$ at $\psi(3770)$

24 HUANG 05B finds $\Gamma(D^0 \rightarrow \rho^- e^+ \nu_e) / 2 \Gamma(D^+ \rightarrow \rho^0 e^+ \nu_e) = 1.2^{+0.4}_{-0.3} \pm 0.1$; isospin invariance predicts the ratio is 1.0.

 $\Gamma(\rho^0 e^+ \nu_e) / \Gamma(\bar{K}^*(892)^0 e^+ \nu_e)$ Γ_{29}/Γ_{34}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.039 ± 0.007 OUR FIT				
0.045 ± 0.014 ± 0.009	49	25 AITALA	97	E791 π^- nucleus, 500 GeV

25 AITALA 97 explicitly subtracts $D^+ \rightarrow \eta' e^+ \nu_e$ and other backgrounds to get this result. $\Gamma(\rho^0 \mu^+ \nu_\mu) / \Gamma(\bar{K}^*(892)^0 \mu^+ \nu_\mu)$ Γ_{30}/Γ_{35}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.045 ± 0.007 OUR AVERAGE				Error includes scale factor of 1.1.
0.041 ± 0.006 ± 0.004	320 ± 44	LINK	06B	FOCS γ A, $\bar{E}_\gamma \approx 180$ GeV
0.051 ± 0.015 ± 0.009	54	26 AITALA	97	E791 π^- nucleus, 500 GeV

0.079 ± 0.019 ± 0.013 39 27 FRABETTI 97 E687 γ Be, $\bar{E}_\gamma \approx 220$ GeV
26 AITALA 97 explicitly subtracts $D^+ \rightarrow \eta' \mu^+ \nu_\mu$ and other backgrounds to get this result.

27 Because the reconstruction efficiency for photons is low, this FRABETTI 97 result also includes any $D^+ \rightarrow \eta' \mu^+ \nu_\mu \rightarrow \gamma \rho^0 \mu^+ \nu_\mu$ events in the numerator.

 $\Gamma(\omega e^+ \nu_e) / \Gamma_{\text{total}}$ Γ_{31}/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0016^{+0.0007}_{-0.0006} ± 0.0001	7.6 ^{+3.3} _{-2.7}	HUANG	05B	CLEO $e^+ e^-$ at $\psi(3770)$

 $\Gamma(\eta'(958) e^+ \nu_e) / \Gamma_{\text{total}}$ Γ_{32}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID	TECN	COMMENT
2.16 ± 0.53 ± 0.07		YELTON	11	CLEO $e^+ e^-$ at $\psi(3770)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<3.5	90	MITCHELL	09B	CLEO See YELTON 11
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NODE=S031C19

NODE=S031C19

NODE=S031C19

NODE=S031C16

NODE=S031C16

NODE=S031C16;LINKAGE=BE

NODE=S031C16;LINKAGE=DB

NODE=S031C34

NODE=S031C34

NODE=S031R95

NODE=S031R95

NODE=S031R95;LINKAGE=HU

NODE=S031B77

NODE=S031B77

NODE=S031B77;LINKAGE=BK

NODE=S031B50

NODE=S031B50

NODE=S031B50;LINKAGE=BK

NODE=S031B50;LINKAGE=B

NODE=S031C14

NODE=S031C14

NODE=S031C35

NODE=S031C35

$\Gamma(\phi e^+ \nu_e)/\Gamma_{\text{total}}$ Unseen decay modes of the ϕ are included.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<0.9 \times 10^{-4}$	90	YELTON	11	CLEO $e^+ e^-$ at $\psi(3770)$
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$<1.6 \times 10^{-4}$	90	MITCHELL	09B	CLEO See YELTON 11
<0.0201	90	ABLIKIM	06P	BES2 $e^+ e^-$ at 3773 MeV
<0.0209	90	BAI	91	MRK3 $e^+ e^- \approx 3.77$ GeV

 Γ_{33}/Γ

NODE=S031R96
NODE=S031R96
NODE=S031R96

Hadronic modes with a \bar{K} or $\bar{K}K\bar{K}$ $\Gamma(K_S^0 \pi^+)/\Gamma_{\text{total}}$ Γ_{38}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$1.526 \pm 0.022 \pm 0.038$	28	DOBBS	07	CLEO See MENDEZ 10
$1.55 \pm 0.05 \pm 0.06$	2230 ± 60	28 HE	05	CLEO See DOBBS 07
$1.6 \pm 0.3 \pm 0.1$	161	ADLER	88C	MRK3 $e^+ e^-$ 3.77 GeV

NODE=S031320

NODE=S031S12
NODE=S031S12

 $\Gamma(K_S^0 \pi^+)/\Gamma(K^- 2\pi^+)$ Γ_{38}/Γ_{40}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.161 ± 0.007 OUR FIT Error includes scale factor of 3.4.				
0.158 ± 0.007 OUR AVERAGE Error includes scale factor of 3.2.				
$0.1682 \pm 0.0012 \pm 0.0037$	30k	MENDEZ	10	CLEO $e^+ e^-$ at 3774 MeV
$0.1530 \pm 0.0023 \pm 0.0016$	10.6k	LINK	02B	FOCS γ nucleus, $\bar{E}_\gamma \approx 180$ GeV
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$0.174 \pm 0.012 \pm 0.011$	473	29 BISHAI	97	CLEO $e^+ e^- \approx \Upsilon(4S)$
$0.137 \pm 0.015 \pm 0.016$	264	ANJOS	90C	E691 Photoproduction

NODE=S031S12;LINKAGE=HE

NODE=S031R27
NODE=S031R27

 $\Gamma(K_L^0 \pi^+)/\Gamma_{\text{total}}$ Γ_{39}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
1.460±0.040±0.035	2023 ± 54	30 HE	08	CLEO $e^+ e^-$ at $\psi(3770)$
30 The difference of CLEO $D^+ \rightarrow K_S^0 \pi^+$ and $K_L^0 \pi^+$ branching fractions over the sum (DOBBS 07 and HE 08) is $+0.022 \pm 0.016 \pm 0.018$.				

NODE=S031R27;LINKAGE=Q7

NODE=S031R01
NODE=S031R01

 $\Gamma(K^- 2\pi^+)/\Gamma_{\text{total}}$ Γ_{40}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
9.13±0.19 OUR FIT				
9.14±0.10±0.17				
31 DOBBS 07 CLEO $e^+ e^-$ at $\psi(3770)$				
$\bullet \bullet \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet \bullet \bullet$				
$9.5 \pm 0.2 \pm 0.3$	$15.1k \pm 130$	31 HE	05	CLEO See DOBBS 07
$9.3 \pm 0.6 \pm 0.8$	1502	32 BALEST	94	CLEO $e^+ e^- \approx \Upsilon(4S)$
$6.4^{+1.5}_{-1.4}$		33 BARLAG	92C	ACCM π^- Cu 230 GeV
$9.1 \pm 1.3 \pm 0.4$	1164	ADLER	88C	MRK3 $e^+ e^-$ 3.77 GeV
9.1 ± 1.9	239	34 SCHINDLER	81	MRK2 $e^+ e^-$ 3.771 GeV

NODE=S031R01;LINKAGE=HE

NODE=S031R19
NODE=S031R19

31 DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.

NODE=S031R19;LINKAGE=HE

32 BALEST 94 measures the ratio of $D^+ \rightarrow K^- \pi^+ \pi^+$ and $D^0 \rightarrow K^- \pi^+$ branching fractions to be $2.35 \pm 0.16 \pm 0.16$ and uses their absolute measurement of the $D^0 \rightarrow K^- \pi^+$ fraction (AKERIB 93).

NODE=S031R19;LINKAGE=B

33 BARLAG 92C computes the branching fraction by topological normalization.

NODE=S031R19;LINKAGE=K

34 SCHINDLER 81 (MARK-2) measures $\sigma(e^+ e^- \rightarrow \psi(3770)) \times$ branching fraction to be 0.38 ± 0.05 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 4.2 \pm 0.6 \pm 0.3$ nb.

NODE=S031R19;LINKAGE=SP

A REVIEW GOES HERE – Check our WWW List of Reviews

NODE=S031DPF

A REVIEW GOES HERE – Check our WWW List of Reviews

NODE=S031DAL

$\Gamma((K^-\pi^+)_{S\text{-wave}}\pi^+)/\Gamma(K^-2\pi^+)$ Γ_{41}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis. The $K^-\pi^+$ S-wave includes a broad scalar κ ($\bar{K}_0^*(800)$), the $\bar{K}_0^*(1430)^0$, and non-resonant background.

VALUE	DOCUMENT ID	TECN	COMMENT
0.801 ±0.012 OUR AVERAGE			
0.8024±0.0138±0.0043	35 LINK	09 FOCS	MIPWA fit, 53k evts
0.838 ±0.038	36 BONVICINI	08A CLEO	QMIPWA fit, 141k evts
0.786 ±0.014 ±0.018	AITALA	06 E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.8323±0.0150±0.0008	37 LINK	07B FOCS	See LINK 09
35 This LINK 09 model-independent partial-wave analysis of the $K^-\pi^+$ S-wave slices the $K^-\pi^+$ mass range into 39 bins.			
36 The BONVICINI 08A QMIPWA (quasi-model-independent partial-wave analysis) of the $K^-\pi^+$ S-wave amplitude slices the $K^-\pi^+$ mass range into 26 bins but keeps the Breit-Wigner $\bar{K}_0^*(1430)^0$.			
37 This LINK 07B fit uses a K matrix. The $K^-\pi^+$ S-wave fit fraction given above breaks down into (207.3 ± 25.5 ± 12.4)% isospin-1/2 and (40.5 ± 9.6 ± 3.2)% isospin-3/2 — with large interference between the two. The isospin-1/2 component includes the κ (or $\bar{K}_0^*(800)^0$) and $\bar{K}_0^*(1430)^0$.			

 $\Gamma(\bar{K}_0^*(800)^0\pi^+, \bar{K}_0^*(800) \rightarrow K^-\pi^+)/\Gamma(K^-2\pi^+)$ Γ_{42}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.478±0.121±0.053	AITALA	02 E791	See AITALA 06

 $\Gamma(\bar{K}^*(892)^0\pi^+, \bar{K}^*(892)^0 \rightarrow K^-\pi^+)/\Gamma(K^-2\pi^+)$ Γ_{44}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.111 ±0.012 OUR AVERAGE Error includes scale factor of 3.7.			
0.1236±0.0034±0.0034	LINK	09 FOCS	MIPWA fit, 53k evts
0.0988±0.0046	BONVICINI	08A CLEO	QMIPWA fit, 141k evts
0.119 ±0.002 ±0.020	AITALA	06 E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.1361±0.0041±0.0030	38 LINK	07B FOCS	See LINK 09
0.123 ±0.010 ±0.009	AITALA	02 E791	See AITALA 06
0.137 ±0.006 ±0.009	FRABETTI	94G E687	Dalitz fit, 8800 evts
0.170 ±0.009 ±0.034	ANJOS	93 E691	γ Be 90–260 GeV
0.14 ±0.04 ±0.04	ALVAREZ	91B NA14	Photoproduction
0.13 ±0.01 ±0.07	ADLER	87 MRK3	e^+e^- 3.77 GeV

38 The statistical error on this LINK 07B value is corrected in LINK 09.

 $\Gamma(\bar{K}^*(1410)^0\pi^+, \bar{K}^{*0} \rightarrow K^-\pi^+)/\Gamma(K^-2\pi^+)$ Γ_{45}/Γ_{40}

VALUE (units 10^{-3})	DOCUMENT ID	TECN	COMMENT
not seen			
not seen			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
4.8±2.1±1.7	LINK	07B FOCS	See LINK 09

 $\Gamma(\bar{K}_0^*(1430)^0\pi^+, \bar{K}_0^*(1430)^0 \rightarrow K^-\pi^+)/\Gamma(K^-2\pi^+)$ Γ_{43}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.1330±0.0062			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.125 ±0.014 ±0.005			
0.284 ±0.022 ±0.059			
0.248 ±0.019 ±0.017			
0.1330±0.0062	BONVICINI	08A CLEO	QMIPWA fit, 141k evts
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.125 ±0.014 ±0.005	AITALA	02 E791	See AITALA 06
0.284 ±0.022 ±0.059	FRABETTI	94G E687	Dalitz fit, 8800 evts
0.248 ±0.019 ±0.017	ANJOS	93 E691	γ Be 90–260 GeV

NODE=S031R49

NODE=S031R49

NODE=S031R49

NODE=S031R49;LINKAGE=LN

NODE=S031R49;LINKAGE=BO

NODE=S031R49;LINKAGE=LI

NODE=S031C7

NODE=S031C7

NODE=S031C7

NODE=S031R88

NODE=S031R88

NODE=S031R88

NODE=S031R88;LINKAGE=LI

NODE=S031B01

NODE=S031B01

NODE=S031B57

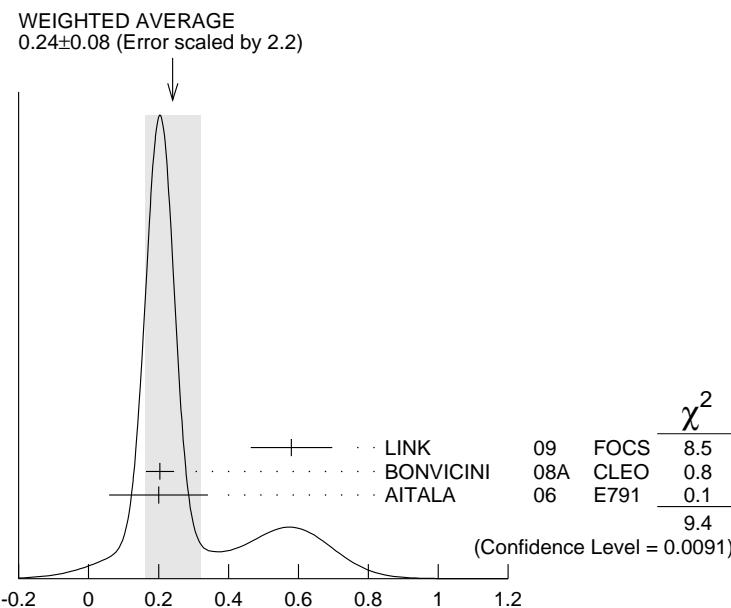
NODE=S031B57

NODE=S031B57

$\Gamma(\bar{K}_2^*(1430)^0 \pi^+, \bar{K}_2^*(1430)^0 \rightarrow K^- \pi^+)/\Gamma(K^- 2\pi^+)$
 Γ_{46}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE (units 10^{-2})	DOCUMENT ID	TECN	COMMENT
0.24 ± 0.08 OUR AVERAGE	Error includes scale factor of 2.2. See the ideogram below.		
0.58 ± 0.10 ± 0.06	LINK	09	FOCS MIPWA fit, 53k evts
0.204 ± 0.040	BONVICINI	08A	CLEO QMIPWA fit, 141k evts
0.2 ± 0.1 ± 0.1	AITALA	06	E791 Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.39 ± 0.09 ± 0.05	LINK	07B	FOCS See LINK 09
0.5 ± 0.1 ± 0.2	AITALA	02	E791 See AITALA 06



$\Gamma(\bar{K}_2^*(1430)^0 \pi^+, \bar{K}_2^*(1430)^0 \rightarrow K^- \pi^+)/\Gamma(K^- 2\pi^+) \quad \Gamma_{46}/\Gamma_{40}$

(units 10^{-2})

 $\Gamma(\bar{K}^*(1680)^0 \pi^+, \bar{K}^*(1680)^0 \rightarrow K^- \pi^+)/\Gamma(K^- 2\pi^+)$
 Γ_{47}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE (units 10^{-2})	DOCUMENT ID	TECN	COMMENT
0.23 ± 0.12 OUR AVERAGE			
1.75 ± 0.62 ± 0.54	LINK	09	FOCS MIPWA fit, 53k evts
0.196 ± 0.118	BONVICINI	08A	CLEO QMIPWA fit, 141k evts
1.2 ± 0.6 ± 1.2	AITALA	06	E791 Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.90 ± 0.63 ± 0.43	LINK	07B	FOCS See LINK 09
2.5 ± 0.7 ± 0.3	AITALA	02	E791 See AITALA 06
4.7 ± 0.6 ± 0.7	FRABETTI	94G	E687 Dalitz fit, 8800 evts
3.0 ± 0.4 ± 1.3	ANJOS	93	E691 γ Be 90–260 GeV

 $\Gamma(K^-(2\pi^+)_{I=2})/\Gamma(K^- 2\pi^+)$
 Γ_{48}/Γ_{40}

VALUE	DOCUMENT ID	TECN	COMMENT
0.155 ± 0.028	BONVICINI	08A	CLEO QMIPWA fit, 141k evts

NODE=S031B58
NODE=S031B58
NODE=S031B58
 $\Gamma(K^- 2\pi^+ \text{ nonresonant})/\Gamma(K^- 2\pi^+)$
 Γ_{49}/Γ_{40}

This is the "fit fraction" from the Dalitz-plot analysis. Later analyses find little need for this decay mode.

VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.130 ± 0.058 ± 0.044	AITALA	02	E791 See AITALA 06
0.998 ± 0.037 ± 0.072	FRABETTI	94G	E687 Dalitz fit, 8800 evts
0.838 ± 0.088 ± 0.275	ANJOS	93	E691 γ Be 90–260 GeV
0.79 ± 0.07 ± 0.15	ADLER	87	MRK3 $e^+ e^-$ 3.77 GeV

NODE=S031C33
NODE=S031C33NODE=S031S36
NODE=S031S36

NODE=S031S36

$\Gamma(K_S^0 \pi^+ \pi^0)/\Gamma_{\text{total}}$	Γ_{50}/Γ
6.99±0.27 OUR FIT	
6.99±0.09±0.25	39 DOBBS 07 CLEO $e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •	
7.2 ± 0.2 ± 0.4	5090 ± 100 39 HE 05 CLEO See DOBBS 07
5.1 ± 1.3 ± 0.8	159 ADLER 88C MRK3 $e^+ e^-$ 3.77 GeV
39 DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.	
$\Gamma(K_S^0 \rho^+)/\Gamma(K_S^0 \pi^+ \pi^0)$	Γ_{51}/Γ_{50}
This is the "fit fraction" from the Dalitz-plot analysis.	
0.68±0.08±0.12	ADLER 87 MRK3 $e^+ e^-$ 3.77 GeV
$\Gamma(\bar{K}^*(892)^0 \pi^+, \bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0)/\Gamma(K_S^0 \pi^+ \pi^0)$	Γ_{52}/Γ_{50}
This is the "fit fraction" from the Dalitz-plot analysis.	
0.19±0.06±0.06	ADLER 87 MRK3 $e^+ e^-$ 3.77 GeV
$\Gamma(K_S^0 \pi^+ \pi^0 \text{ nonresonant})/\Gamma(K_S^0 \pi^+ \pi^0)$	Γ_{53}/Γ_{50}
This is the "fit fraction" from the Dalitz-plot analysis.	
0.13±0.07±0.08	ADLER 87 MRK3 $e^+ e^-$ 3.77 GeV
$\Gamma(K^- 2\pi^+ \pi^0)/\Gamma_{\text{total}}$	Γ_{54}/Γ
See our 2008 Review (Physics Letters B667 1 (2008)) for measurements of submodes of this mode. There is nothing new since 1992, and the two papers, ANJOS 92C, with 91 ± 12 events above background, and COFFMAN 92B, with 142 ± 20 such events, could not determine submode fractions with much accuracy.	
5.99±0.18 OUR FIT	
5.98±0.08±0.16	40 DOBBS 07 CLEO $e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •	
6.0 ± 0.2 ± 0.2	4840 ± 100 40 HE 05 CLEO See DOBBS 07
5.8 ± 1.2 ± 1.2	142 COFFMAN 92B MRK3 $e^+ e^-$ 3.77 GeV
6.3 ± 1.4 ± 1.2	175 BALTRUSAIT..86E MRK3 See COFFMAN 92B
40 DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.	
$\Gamma(K_S^0 2\pi^+ \pi^-)/\Gamma_{\text{total}}$	Γ_{55}/Γ
See our 2008 Review (Physics Letters B667 1 (2008)) for measurements of submodes of this mode. There is nothing new since 1992, and the two papers, ANJOS 92C, with 229 ± 17 events above background, and COFFMAN 92B, with 209 ± 20 such events, could not determine submode fractions with much accuracy.	
3.12 ± 0.11 OUR FIT	
3.122±0.046±0.096	41 DOBBS 07 CLEO $e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •	
3.2 ± 0.1 ± 0.2	3210 ± 85 41 HE 05 CLEO See DOBBS 07
2.1 ± 1.0 ± 0.9	42 BARLAG 92C ACCM π^- Cu 230 GeV
3.3 ± 0.8 ± 0.2	168 ADLER 88C MRK3 $e^+ e^-$ 3.77 GeV
41 DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.	
42 BARLAG 92C computes the branching fraction by topological normalization.	
$\Gamma(K^- 3\pi^+ \pi^-)/\Gamma(K^- 2\pi^+)$	Γ_{56}/Γ_{40}
0.061±0.005 OUR FIT	Error includes scale factor of 1.1.
0.062±0.008 OUR AVERAGE	Error includes scale factor of 1.3.
0.058±0.002±0.006	2923 LINK 03D FOCS γ A, $\bar{E}_\gamma \approx 180$ GeV
0.077±0.008±0.010	239 FRABETTI 97C E687 γ Be, $\bar{E}_\gamma \approx 200$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •	
0.09 ± 0.01 ± 0.01	113 ANJOS 90D E691 Photoproduction

$\Gamma(\bar{K}^*(892)^0 2\pi^+ \pi^-)$	$\Gamma(K^* \rightarrow K^- \pi^+)$	$\Gamma(K^- 3\pi^+ \pi^-)$	Γ_{57}/Γ_{56}	NODE=S031R84 NODE=S031R84
0.21±0.04±0.06	LINK	03D FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$	
$\Gamma(\bar{K}^*(892)^0 \rho^0 \pi^+)$	$\Gamma(K^* \rightarrow K^- \pi^+)$	$\Gamma(K^- 3\pi^+ \pi^-)$	Γ_{58}/Γ_{56}	NODE=S031C12 NODE=S031C12
0.40±0.03±0.06	LINK	03D FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$	
$\Gamma(\bar{K}^*(892)^0 \rho^0 \pi^+)$	$\Gamma(K^* \rightarrow K^- \pi^+)$	$\Gamma(K^- 2\pi^+)$	Γ_{58}/Γ_{40}	NODE=S031B75 NODE=S031B75
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.016±0.007±0.004	FRABETTI	97C E687	$\gamma Be, \bar{E}_\gamma \approx 200 \text{ GeV}$	
$\Gamma(\bar{K}^*(892)^0 2\pi^+ \pi^-)$	$\Gamma(K^* \rightarrow K^- \pi^+)$	$\Gamma(K^- 2\pi^+)$	Γ_{60}/Γ_{40}	NODE=S031B73 NODE=S031B73
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.032±0.010±0.008	FRABETTI	97C E687	$\gamma Be, \bar{E}_\gamma \approx 200 \text{ GeV}$	
$\Gamma(K^- \rho^0 2\pi^+)$	$\Gamma(K^- 3\pi^+ \pi^-)$		Γ_{61}/Γ_{56}	NODE=S031C11 NODE=S031C11
0.30±0.04±0.01	LINK	03D FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$	
$\Gamma(K^- \rho^0 2\pi^+)$	$\Gamma(K^- 2\pi^+)$		Γ_{61}/Γ_{40}	NODE=S031B74 NODE=S031B74
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.034±0.009±0.005	FRABETTI	97C E687	$\gamma Be, \bar{E}_\gamma \approx 200 \text{ GeV}$	
$\Gamma(\bar{K}^*(892)^0 a_1(1260)^+)$	$\Gamma(K^- 2\pi^+)$		Γ_{59}/Γ_{40}	NODE=S031C13
Unseen decay modes of the $\bar{K}^*(892)^0$ and $a_1(1260)^+$ are included.				
0.099±0.008±0.018	LINK	03D FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$	NODE=S031C13 NODE=S031C13
$\Gamma(K^- 3\pi^+ \pi^-)$	$\Gamma(K^- 3\pi^+ \pi^-)$		Γ_{62}/Γ_{56}	NODE=S031B76 NODE=S031B76
0.07 ±0.05±0.01	LINK	03D FOCS	$\gamma A, \bar{E}_\gamma \approx 180 \text{ GeV}$	
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.026	90	FRABETTI	97C E687	$\gamma Be, \bar{E}_\gamma \approx 200 \text{ GeV}$
$\Gamma(K^+ 2K_S^0)$	$\Gamma(K^- 2\pi^+)$		Γ_{63}/Γ_{40}	NODE=S031R92 NODE=S031R92
0.049±0.022 OUR AVERAGE	EVTS	DOCUMENT ID	TECN	COMMENT
Error includes scale factor of 2.4.				
0.035±0.010±0.005	39 ± 9	ALBRECHT	94I ARG	$e^+ e^- \approx 10 \text{ GeV}$
0.085±0.018	70 ± 12	AMMAR	91 CLEO	$e^+ e^- \approx 10.5 \text{ GeV}$
$\Gamma(K^+ K^- K_S^0 \pi^+)$	$\Gamma(K_S^0 2\pi^+ \pi^-)$		Γ_{64}/Γ_{55}	NODE=S031C4 NODE=S031C4
7.7±1.5±0.9	EVTS	DOCUMENT ID	TECN	COMMENT
35 ± 7	LINK	01C FOCS	$\gamma \text{ nucleus}, \bar{E}_\gamma \approx 180 \text{ GeV}$	
Pionic modes				
$\Gamma(\pi^+ \pi^0)$	$\Gamma(K^- 2\pi^+)$		Γ_{65}/Γ_{40}	NODE=S031325
1.31±0.06 OUR AVERAGE	EVTS	DOCUMENT ID	TECN	COMMENT
1.29±0.04±0.05	2649 ± 76	MENDEZ	10 CLEO	$e^+ e^- \text{ at } 3774 \text{ MeV}$
1.33±0.11±0.09	1229 ± 99	AUBERT,B	06F BABR	$e^+ e^- \approx \Upsilon(4S)$
1.44±0.19±0.10	171 ± 22	ARMS	04 CLEO	$e^+ e^- \approx 10 \text{ GeV}$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.33±0.07±0.06	914 ± 46	RUBIN	06 CLEO	See MENDEZ 10

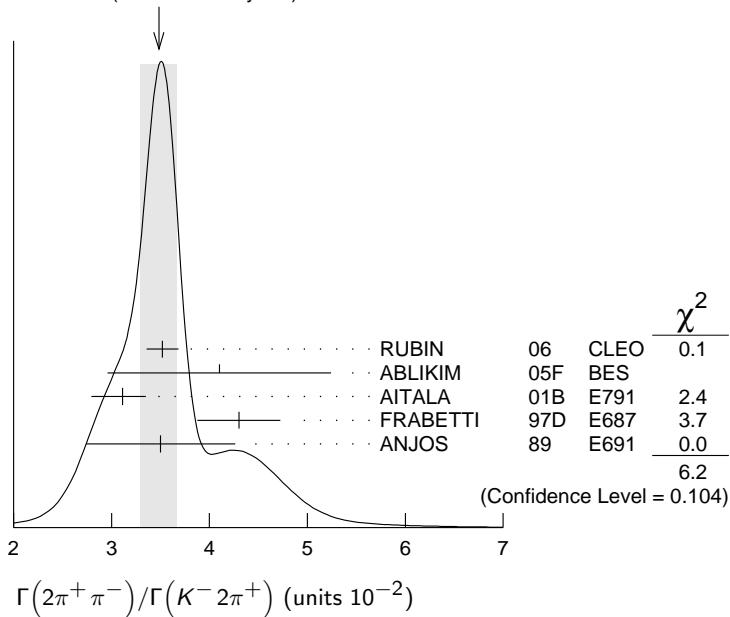
$\Gamma(2\pi^+\pi^-)/\Gamma(K^-\bar{2}\pi^+)$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
3.48±0.19 OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.				
3.52±0.11±0.12	3303 ± 95	RUBIN	06	CLEO $e^+ e^-$ at $\psi(3770)$
4.1 ± 1.1 ± 0.3	85 ± 22	ABLIKIM	05F	BES $e^+ e^- \approx \psi(3770)$
3.11±0.18 ^{+0.16} _{-0.26}	1172	AITALA	01B E791	π^- nucleus, 500 GeV
4.3 ± 0.3 ± 0.3	236	FRABETTI	97D E687	γ Be ≈ 200 GeV
3.5 ± 0.7 ± 0.3	83	ANJOS	89 E691	Photoproduction

 Γ_{66}/Γ_{40}

NODE=S031R30
NODE=S031R30

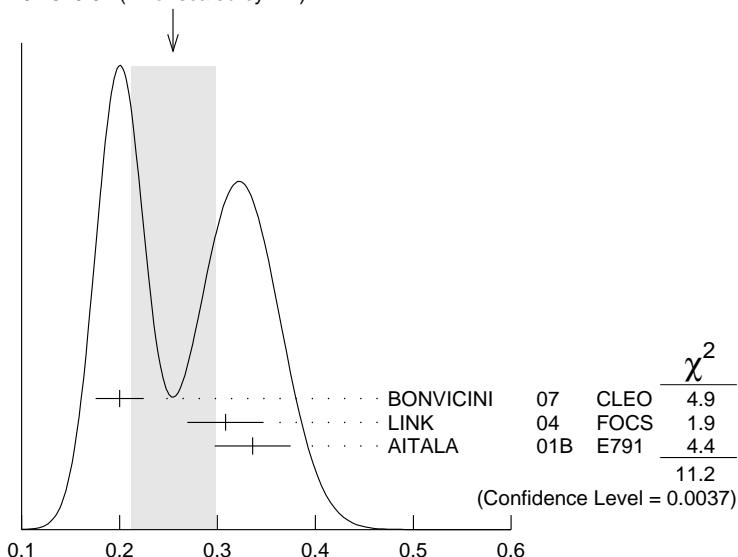
WEIGHTED AVERAGE
3.48±0.19 (Error scaled by 1.4)

 $\Gamma(\rho^0\pi^+)/\Gamma(2\pi^+\pi^-)$ Γ_{67}/Γ_{66}

VALUE	DOCUMENT ID	TECN	COMMENT
0.25 ± 0.04 OUR AVERAGE Error includes scale factor of 2.4. See the ideogram below.			
0.200 ± 0.023 ± 0.009	BONVICINI 07	CLEO	Dalitz fit, ≈ 2240 evts
0.3082±0.0314±0.0230	LINK 04	FOCS	Dalitz fit, 1527 ± 51 evts
0.336 ± 0.032 ± 0.022	AITALA 01B E791		Dalitz fit, 1172 evts

NODE=S031B81
NODE=S031B81
NODE=S031B81

WEIGHTED AVERAGE
0.25±0.04 (Error scaled by 2.4)



$\Gamma(\rho^0\pi^+)/\Gamma(2\pi^+\pi^-)$

$\Gamma(\pi^+(\pi^+\pi^-)S\text{-wave})/\Gamma(2\pi^+\pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis. See also the next three data blocks.

VALUE	DOCUMENT ID	TECN	COMMENT
0.5600±0.0324±0.0214	43 LINK	04 FOCS	Dalitz fit, 1527 ± 51 evts

43 LINK 04 borrows a K-matrix parametrization from ANISOVICH 03 of the full $\pi\pi$ S-wave isoscalar scattering amplitude to describe the $\pi^+\pi^-$ S-wave component of the $\pi^+\pi^+\pi^-$ state. The fit fraction given above is a sum over five f_0 mesons, the $f_0(980)$, $f_0(1300)$, $f_0(1200\text{--}1600)$, $f_0(1500)$, and $f_0(1750)$. See LINK 04 for details and discussion.

 $\Gamma(\sigma\pi^+, \sigma \rightarrow \pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.422±0.027 OUR AVERAGE			
0.418±0.014±0.025	BONVICINI	07 CLEO	Dalitz fit, ≈ 2240 evts
0.463±0.090±0.021	AITALA	01B E791	Dalitz fit, 1172 evts

 Γ_{68}/Γ_{66}

NODE=S031S17

NODE=S031S17

NODE=S031S17

NODE=S031S17;LINKAGE=LI

 $\Gamma(f_0(980)\pi^+, f_0(980) \rightarrow \pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ Γ_{70}/Γ_{66}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.048±0.010 OUR AVERAGE			Error includes scale factor of 1.3.
0.041±0.009±0.003	BONVICINI	07 CLEO	Dalitz fit, ≈ 2240 evts
0.062±0.013±0.004	AITALA	01B E791	Dalitz fit, 1172 evts

NODE=S031B98

NODE=S031B98

NODE=S031B98

 $\Gamma(f_0(1370)\pi^+, f_0(1370) \rightarrow \pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ Γ_{71}/Γ_{66}

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID	TECN	COMMENT
0.024±0.013 OUR AVERAGE			
0.026±0.018±0.006	BONVICINI	07 CLEO	Dalitz fit, ≈ 2240 evts
0.023±0.015±0.008	AITALA	01B E791	Dalitz fit, 1172 evts

NODE=S031C1

NODE=S031C1

NODE=S031C1

 $\Gamma(f_2(1270)\pi^+, f_2(1270) \rightarrow \pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ Γ_{72}/Γ_{66}

This is the "fit fraction" from the Dalitz-plot analysis.

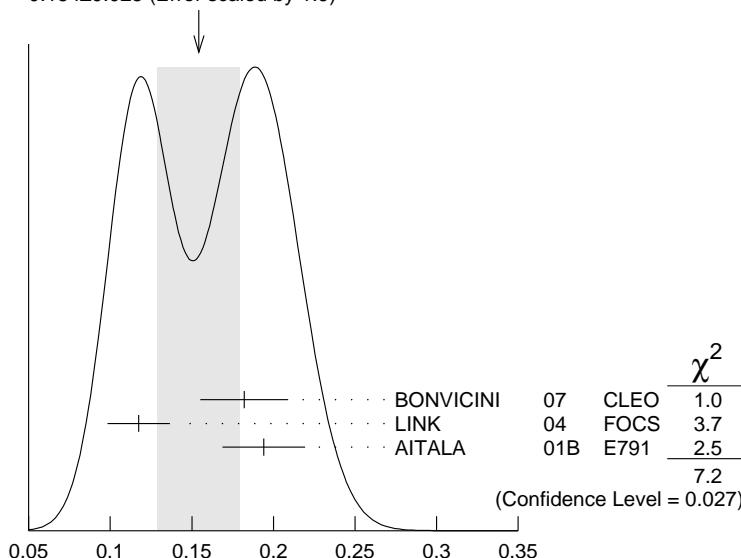
VALUE	DOCUMENT ID	TECN	COMMENT
0.154 ± 0.025 OUR AVERAGE			Error includes scale factor of 1.9. See the ideogram below.
0.182 ± 0.026 ± 0.007	BONVICINI	07 CLEO	Dalitz fit, ≈ 2240 evts
0.1174±0.0190±0.0029	LINK	04 FOCS	Dalitz fit, 1527 ± 51 evts
0.194 ± 0.025 ± 0.004	AITALA	01B E791	Dalitz fit, 1172 evts

NODE=S031B99

NODE=S031B99

NODE=S031B99

WEIGHTED AVERAGE
0.154±0.025 (Error scaled by 1.9)

 $\Gamma(f_2(1270)\pi^+, f_2(1270) \rightarrow \pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$

$\Gamma(\rho(1450)^0 \pi^+, \rho(1450)^0 \rightarrow \pi^+ \pi^-) / \Gamma(2\pi^+ \pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.024	95	BONVICINI	07	CLEO Dalitz fit, ≈ 2240 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.007 \pm 0.007 \pm 0.003$		AITALA	01B E791	Dalitz fit, 1172 evts

 Γ_{73}/Γ_{66}

NODE=S031C2
NODE=S031C2
NODE=S031C2

 $\Gamma(f_0(1500)\pi^+, f_0(1500) \rightarrow \pi^+ \pi^-) / \Gamma(2\pi^+ \pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.034 ± 0.010 ± 0.008	BONVICINI	07	CLEO Dalitz fit, ≈ 2240 evts

 Γ_{74}/Γ_{66}

NODE=S031C25
NODE=S031C25
NODE=S031C25

 $\Gamma(f_0(1710)\pi^+, f_0(1710) \rightarrow \pi^+ \pi^-) / \Gamma(2\pi^+ \pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.016	95	BONVICINI	07	CLEO Dalitz fit, ≈ 2240 evts

 Γ_{75}/Γ_{66}

NODE=S031C26
NODE=S031C26
NODE=S031C26

 $\Gamma(f_0(1790)\pi^+, f_0(1790) \rightarrow \pi^+ \pi^-) / \Gamma(2\pi^+ \pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.02	95	BONVICINI	07	CLEO Dalitz fit, ≈ 2240 evts

 Γ_{76}/Γ_{66}

NODE=S031C27
NODE=S031C27
NODE=S031C27

 $\Gamma((\pi^+ \pi^+)_{S\text{-wave}} \pi^-) / \Gamma(2\pi^+ \pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.037	95	BONVICINI	07	CLEO Dalitz fit, ≈ 2240 evts

 Γ_{77}/Γ_{66}

NODE=S031C28
NODE=S031C28
NODE=S031C28

 $\Gamma(2\pi^+ \pi^- \text{ nonresonant}) / \Gamma(2\pi^+ \pi^-)$

This is the "fit fraction" from the Dalitz-plot analysis.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.035	95	BONVICINI	07	CLEO Dalitz fit, ≈ 2240 evts

• • • We do not use the following data for averages, fits, limits, etc. **• • •**

$0.078 \pm 0.060 \pm 0.027$ AITALA 01B E791 Dalitz fit, 1172 evts

 Γ_{78}/Γ_{66}

NODE=S031B82
NODE=S031B82
NODE=S031B82

 $\Gamma(\pi^+ 2\pi^0) / \Gamma(K^- 2\pi^+)$

<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
5.0 ± 0.3 ± 0.3	1535 ± 89	RUBIN	06	CLEO $e^+ e^-$ at $\psi(3770)$

 Γ_{79}/Γ_{40}

NODE=S031C23
NODE=S031C23

 $\Gamma(2\pi^+ \pi^- \pi^0) / \Gamma(K^- 2\pi^+)$

<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
12.4 ± 0.5 ± 0.6	5701 ± 205	RUBIN	06	CLEO $e^+ e^-$ at $\psi(3770)$

 Γ_{80}/Γ_{40}

NODE=S031R63
NODE=S031R63

 $\Gamma(\eta \pi^+)/\Gamma_{\text{total}}$
 Γ_{84}/Γ

NODE=S031R03
NODE=S031R03
NODE=S031R03

Unseen decay modes of the η are included.

<u>VALUE (units 10^{-4})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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• • • We do not use the following data for averages, fits, limits, etc. **• • •**

$34.3 \pm 1.4 \pm 1.7$ 1033 ± 42 ARTUSO 08 CLEO See MENDEZ 10

 $\Gamma(\eta \pi^+)/\Gamma(K^- 2\pi^+)$

Unseen decay modes of the η are included.

<u>VALUE (units 10^{-2})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
3.87 ± 0.09 ± 0.19	2940 ± 68	MENDEZ	10	CLEO $e^+ e^-$ at 3774 MeV

• • • We do not use the following data for averages, fits, limits, etc. **• • •**

$3.81 \pm 0.26 \pm 0.21$ 377 ± 26 RUBIN 06 CLEO See ARTUSO 08

 Γ_{84}/Γ_{40}

NODE=S031R64
NODE=S031R64
NODE=S031R64

 $\Gamma(\omega \pi^+)/\Gamma_{\text{total}}$
 Γ_{86}/Γ

NODE=S031C24
NODE=S031C24
NODE=S031C24

Unseen decay modes of the ω are included.

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$<3.4 \times 10^{-4}$	90	RUBIN	06	CLEO $e^+ e^-$ at $\psi(3770)$

$\Gamma(3\pi^+ 2\pi^-)/\Gamma(K^- 2\pi^+)$	Γ_{83}/Γ_{40}	NODE=S031R62 NODE=S031R62
VALUE (units 10^{-2}) EVTS	DOCUMENT ID	TECN COMMENT
1.77±0.17 OUR FIT		
1.73±0.20±0.17 732 ± 77	RUBIN	06 CLEO $e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •		
$2.3 \pm 0.4 \pm 0.2$ 58	FRABETTI	97C E687 γ Be, $\bar{E}_\gamma \approx 200$ GeV
$\Gamma(3\pi^+ 2\pi^-)/\Gamma(K^- 3\pi^+ \pi^-)$	Γ_{83}/Γ_{56}	NODE=S031C9 NODE=S031C9
VALUE EVTS	DOCUMENT ID	TECN COMMENT
0.289±0.019 OUR FIT		
0.290±0.017±0.011 835	LINK	03D FOCS γ A, $\bar{E}_\gamma \approx 180$ GeV
$\Gamma(\eta\pi^+\pi^0)/\Gamma_{\text{total}}$	Γ_{85}/Γ	NODE=S031R05 NODE=S031R05
VALUE (units 10^{-4}) EVTS	DOCUMENT ID	TECN COMMENT
13.8±3.1±1.6 149 ± 34	ARTUSO	08 CLEO $e^+ e^-$ at $\psi(3770)$
$\Gamma(\eta'(958)\pi^+)/\Gamma_{\text{total}}$	Γ_{87}/Γ	NODE=S031R04 NODE=S031R04 NODE=S031R04
Unseen decay modes of the $\eta'(958)$ are included.		
VALUE (units 10^{-4}) EVTS	DOCUMENT ID	TECN COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •		
$44.2 \pm 2.5 \pm 2.9$ 352 ± 20	ARTUSO	08 CLEO See MENDEZ 10
$\Gamma(\eta'(958)\pi^+)/\Gamma(K^- 2\pi^+)$	Γ_{87}/Γ_{40}	NODE=S031S10 NODE=S031S10 NODE=S031S10
Unseen decay modes of the $\eta'(958)$ are included.		
VALUE (units 10^{-2}) EVTS	DOCUMENT ID	TECN COMMENT
5.12±0.17±0.25 1037 ± 35	MENDEZ	10 CLEO $e^+ e^-$ at 3774 MeV
$\Gamma(\eta'(958)\pi^+\pi^0)/\Gamma_{\text{total}}$	Γ_{88}/Γ	NODE=S031R06 NODE=S031R06 NODE=S031R06
Unseen decay modes of the $\eta'(958)$ are included.		
VALUE (units 10^{-4}) EVTS	DOCUMENT ID	TECN COMMENT
15.7±4.3±2.5 33 ± 9	ARTUSO	08 CLEO $e^+ e^-$ at $\psi(3770)$
Hadronic modes with a $K\bar{K}$ pair		
$\Gamma(K^+ K_S^0)/\Gamma_{\text{total}}$	Γ_{89}/Γ	NODE=S031330
VALUE (units 10^{-3}) EVTS	DOCUMENT ID	TECN COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •		
$3.14 \pm 0.09 \pm 0.08$ 1971 ± 51	BONVICINI	08 CLEO See MENDEZ 10
$\Gamma(K^+ K_S^0)/\Gamma(K_S^0 \pi^+)$	Γ_{89}/Γ_{38}	NODE=S031R26 NODE=S031R26
VALUE EVTS	DOCUMENT ID	TECN COMMENT
0.193 ±0.007 OUR FIT Error includes scale factor of 3.2.		
0.1901±0.0024 OUR AVERAGE		
$0.1899 \pm 0.0011 \pm 0.0022$ $101k \pm 561$	WON	09 BELL $e^+ e^-$ at $\Upsilon(4S)$
$0.1892 \pm 0.0155 \pm 0.0073$ 278 ± 21	ARMS	04 CLEO $e^+ e^- \approx 10$ GeV
$0.1996 \pm 0.0119 \pm 0.0096$ 949	LINK	02B FOCS γ A, $\bar{E}_\gamma \approx 180$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •		
$0.222 \pm 0.037 \pm 0.013$ 63 ± 10	ABLIKIM	05F BES $e^+ e^- \approx \psi(3770)$
$0.222 \pm 0.041 \pm 0.019$ 70	BISHAI	97 CLEO See ARMS 04
$0.25 \pm 0.04 \pm 0.02$ 129	FRABETTI	95 E687 γ Be, $\bar{E}_\gamma \approx 200$ GeV
$0.271 \pm 0.065 \pm 0.039$ 69	ANJOS	90C E691 γ Be
$0.317 \pm 0.086 \pm 0.048$ 31	BALTRUSAIT..85E	MRK3 $e^+ e^-$ 3.77 GeV
0.25 ± 0.15 6	SCHINDLER	81 MRK2 $e^+ e^-$ 3.771 GeV
$\Gamma(K^+ K_S^0)/\Gamma(K^- 2\pi^+)$	Γ_{89}/Γ_{40}	NODE=S031B72 NODE=S031B72
VALUE (units 10^{-2}) EVTS	DOCUMENT ID	TECN COMMENT
3.11±0.16 OUR FIT Error includes scale factor of 3.3.		
3.35±0.06±0.07 5161 ± 86	MENDEZ	10 CLEO $e^+ e^-$ at 3774 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •		
$3.02 \pm 0.18 \pm 0.15$	44 LINK	02B FOCS γ nucleus, $\bar{E}_\gamma \approx 180$ GeV
44 This LINK 02B result is redundant with a result in the previous datablock.		NODE=S031B72

⁴⁴This LINK 02B result is redundant with a result in the previous datablock.

$\Gamma(K^+ K^- \pi^+)/\Gamma_{\text{total}}$	Γ_{90}/Γ	NODE=S031C22 NODE=S031C22
<u>VALUE (units 10^{-2})</u>	<u>EVTS</u> <u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
0.954±0.026 OUR FIT	Error includes scale factor of 1.1.	
0.935±0.017±0.024	45 DOBBS 07 CLEO $e^+ e^-$ at $\psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •		
0.97 ± 0.04 ± 0.04	1250 ± 40 45 HE 05 CLEO See DOBBS 07	
45 DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.		NODE=S031C22;LINKAGE=HE
$\Gamma(K^+ K^- \pi^+)/\Gamma(K^+ 2\pi^+)$	Γ_{90}/Γ_{40}	NODE=S031B67 NODE=S031B67
<u>VALUE</u>	<u>EVTS</u> <u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
0.1045±0.0022 OUR FIT	Error includes scale factor of 1.3.	
0.1058±0.0029 OUR AVERAGE	Error includes scale factor of 1.4.	
0.117 ± 0.013 ± 0.007	181 ± 20 ABLIKIM 05F BES $e^+ e^- \approx \psi(3770)$	
0.107 ± 0.001 ± 0.002	43k AUBERT 05S BABR $e^+ e^- \approx \Upsilon(4S)$	
0.093 ± 0.010 + 0.008	JUN 00 SELX Σ^- nucleus, 600 GeV	
0.0976 ± 0.0042 ± 0.0046	FRABETTI 95B E687 γ Be, $\bar{E}_\gamma \approx 200$ GeV	
$\Gamma(\phi\pi^+, \phi \rightarrow K^+ K^-)/\Gamma(K^+ K^- \pi^+)$	Γ_{91}/Γ_{90}	NODE=S031R28 NODE=S031R28 NODE=S031R28
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
27.8±0.4±0.2	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	
• • • We do not use the following data for averages, fits, limits, etc. • • •		
29.2 ± 3.1 ± 3.0	FRABETTI 95B E687 Dalitz fit, 915 evts	
$\Gamma(K^+ \bar{K}^*(892)^0, \bar{K}^*(892)^0 \rightarrow K^- \pi^+)/\Gamma(K^+ K^- \pi^+)$	Γ_{92}/Γ_{90}	NODE=S031R29 NODE=S031R29 NODE=S031R29
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
25.7±0.5±0.4	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	
• • • We do not use the following data for averages, fits, limits, etc. • • •		
30.1 ± 2.0 ± 2.5	FRABETTI 95B E687 Dalitz fit, 915 evts	
$\Gamma(K^+ \bar{K}_0^*(1430)^0, \bar{K}_0^*(1430)^0 \rightarrow K^- \pi^+)/\Gamma(K^+ K^- \pi^+)$	Γ_{93}/Γ_{90}	NODE=S031S09 NODE=S031S09 NODE=S031S09
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
18.8±1.2±3.3	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	
• • • We do not use the following data for averages, fits, limits, etc. • • •		
37.0 ± 3.5 ± 1.8	FRABETTI 95B E687 Dalitz fit, 915 evts	
$\Gamma(K^+ \bar{K}_2^*(1430)^0, \bar{K}_2^* \rightarrow K^- \pi^+)/\Gamma(K^+ K^- \pi^+)$	Γ_{94}/Γ_{90}	NODE=S031C29 NODE=S031C29 NODE=S031C29
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
1.7±0.4±1.2	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	
$\Gamma(K^+ \bar{K}_0^*(800), \bar{K}_0^* \rightarrow K^- \pi^+)/\Gamma(K^+ K^- \pi^+)$	Γ_{95}/Γ_{90}	NODE=S031C30 NODE=S031C30 NODE=S031C30
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
7.0±0.8±3.5	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	
$\Gamma(a_0(1450)^0 \pi^+, a_0^0 \rightarrow K^+ K^-)/\Gamma(K^+ K^- \pi^+)$	Γ_{96}/Γ_{90}	NODE=S031C31 NODE=S031C31 NODE=S031C31
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
4.6±0.6±7.2	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	
$\Gamma(\phi(1680)\pi^+, \phi \rightarrow K^+ K^-)/\Gamma(K^+ K^- \pi^+)$	Γ_{97}/Γ_{90}	NODE=S031C32 NODE=S031C32 NODE=S031C32
This is the "fit fraction" from the Dalitz-plot analysis.		
<u>VALUE (%)</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>	
0.51±0.11±0.37	RUBIN 08 CLEO Dalitz fit, 19,458 ± 163 evts	

$\Gamma(K^*(892)^+ K_S^0)/\Gamma(K_S^0 \pi^+)$ Unseen decay modes of the $K^*(892)^+$ are included.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.1±0.3±0.4	67	FRABETTI	95	E687 γ Be $\bar{E}_\gamma \approx 200$ GeV

 Γ_{105}/Γ_{38}

NODE=S031B63

NODE=S031B63

NODE=S031B63

 $\Gamma(\phi \pi^+ \pi^0)/\Gamma_{\text{total}}$ Unseen decay modes of the ϕ are included.

VALUE	DOCUMENT ID	TECN	COMMENT
0.023±0.010	46 BARLAG	92C	ACCM π^- Cu 230 GeV

46 BARLAG 92C computes the branching fraction using topological normalization.

 Γ_{102}/Γ

NODE=S031B4

NODE=S031B4

NODE=S031B4

 $\Gamma(\phi \rho^+)/\Gamma(K^- 2\pi^+)$ Unseen decay modes of the ϕ are included.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.16	90	DAOUDI	92	CLEO $e^+ e^- \approx 10.5$ GeV

 Γ_{103}/Γ_{40}

NODE=S031B5

NODE=S031B5

 $\Gamma(K^+ K^- \pi^+ \pi^0 \text{non-}\phi)/\Gamma_{\text{total}}$ Γ_{104}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
0.015^{+0.007}_{-0.006}	47 BARLAG	92C	ACCM π^- Cu 230 GeV

47 BARLAG 92C computes the branching fraction using topological normalization.

 $\Gamma(K^+ K^- \pi^+ \pi^0 \text{non-}\phi)/\Gamma(K^- 2\pi^+)$ Γ_{104}/Γ_{40}

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				

<0.25 90 ANJOS 89E E691 Photoproduction

 $\Gamma(K^+ K_S^0 \pi^+ \pi^-)/\Gamma(K_S^0 2\pi^+ \pi^-)$ Γ_{99}/Γ_{55}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
5.62±0.39±0.40	469 ± 32	LINK	01C FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV

 $\Gamma(K_S^0 K^- 2\pi^+)/\Gamma(K_S^0 2\pi^+ \pi^-)$ Γ_{100}/Γ_{55}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
7.68±0.41±0.32	670 ± 35	LINK	01C FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV

 $\Gamma(K^+ K^- 2\pi^+ \pi^-)/\Gamma(K^- 3\pi^+ \pi^-)$ Γ_{101}/Γ_{56}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.040±0.009±0.019	38	LINK	03D FOCS	$\gamma A, \bar{E}_\gamma \approx 180$ GeV

 Doubly Cabibbo-suppressed modes

 $\Gamma(K^+ \pi^0)/\Gamma_{\text{total}}$ Γ_{106}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
1.83±0.26 OUR FIT				Error includes scale factor of 1.4.

2.52±0.47±0.26 189 ± 37 AUBERT,B 06F BABR $e^+ e^- \approx \gamma(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

2.28±0.36±0.17 148 ± 23 DYTMAN 06 CLEO See MENDEZ 10

 $\Gamma(K^+ \pi^0)/\Gamma(K^- 2\pi^+)$ Γ_{106}/Γ_{40}

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
2.01±0.29 OUR FIT				Error includes scale factor of 1.4.

1.9 ± 0.2 ± 0.1 343 ± 37 MENDEZ 10 CLEO $e^+ e^-$ at 3774 MeV $\Gamma(K^+ \eta)/\Gamma(\eta \pi^+)$ Γ_{107}/Γ_{84}

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
3.06±0.43±0.14	166 ± 23	WON	11 BELL	$e^+ e^- \approx \gamma(4S)$

 $\Gamma(K^+ \eta)/\Gamma(K^- 2\pi^+)$ Γ_{107}/Γ_{40} Unseen decay modes of the η are included.

VALUE (units 10^{-2})	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				

<0.15 90 MENDEZ 10 CLEO $e^+ e^-$ at 3774 MeV

NODE=S031B63

NODE=S031B63

NODE=S031B63

NODE=S031B4

NODE=S031B4

NODE=S031B4

NODE=S031B4;LINKAGE=A

NODE=S031R91

NODE=S031R91

NODE=S031R91

NODE=S031B5

NODE=S031B5

NODE=S031B5;LINKAGE=A

NODE=S031R67

NODE=S031R67

NODE=S031C6

NODE=S031C6

NODE=S031C5

NODE=S031C5

NODE=S031C10

NODE=S031C10

NODE=S031335

NODE=S031S01

NODE=S031S01

NODE=S031S13

NODE=S031S13

NODE=S031S25

NODE=S031S25

NODE=S031S18

NODE=S031S18

NODE=S031S18

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<5.9 \times 10^{-6}$	90	50 RUBIN	10 CLEO	$e^+ e^-$ at $\psi(3770)$
$<7.4 \times 10^{-6}$	90	HE	05A CLEO	See RUBIN 10
$<5.2 \times 10^{-5}$	90	ITALA	99G E791	$\pi^- N$ 500 GeV
$<1.1 \times 10^{-4}$	90	FRAZETTI	97B E687	γ Be, $\bar{E}_\gamma \approx$ 220 GeV
$<6.6 \times 10^{-5}$	90	ITALA	96 E791	$\pi^- N$ 500 GeV
$<2.5 \times 10^{-3}$	90	WEIR	90B MRK2	$e^+ e^-$ 29 GeV
$<2.6 \times 10^{-3}$	90	HAAS	88 CLEO	$e^+ e^-$ 10 GeV

50 This RUBIN 10 limit is for the $e^+ e^-$ mass in the continuum away from the $\phi(1020)$. See the next data block.

NODE=S031R53;LINKAGE=HE

$\Gamma(\pi^+ \phi, \phi \rightarrow e^+ e^-)/\Gamma_{\text{total}}$

Γ_{117}/Γ

This is *not* a test for the $\Delta C = 1$ weak neutral current, but leads to the $\pi^+ e^+ e^-$ final state.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$(1.7 \pm 1.4 \pm 0.1) \times 10^{-6}$	4	51 RUBIN	10 CLEO	$e^+ e^-$ at $\psi(3770)$	

• • • We do not use the following data for averages, fits, limits, etc. • • •

$(2.7 \pm 3.6 \pm 0.2) \times 10^{-6}$	2	HE	05A CLEO	See RUBIN 10
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51 This RUBIN 10 result is consistent with the known $D^+ \rightarrow \phi \pi^+$ and $\phi \rightarrow e^+ e^-$ fractions.

NODE=S031C17
NODE=S031C17
NODE=S031C17

$\Gamma(\pi^+ \mu^+ \mu^-)/\Gamma_{\text{total}}$

Γ_{118}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<3.9 \times 10^{-6}$	90		52 ABAZOV	08D D0	$p\bar{p}, E_{\text{cm}} = 1.96$ TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<6.5 \times 10^{-6}$	90	-0.2 ± 2.9	LEES	11G BABR	$e^+ e^- \approx \gamma(4S)$
$<8.8 \times 10^{-6}$	90		LINK	03F FOCS	γ nucleus, $\bar{E}_\gamma \approx$ 180 GeV
$<1.5 \times 10^{-5}$	90		ITALA	99G E791	$\pi^- N$ 500 GeV
$<8.9 \times 10^{-5}$	90		FRAZETTI	97B E687	γ Be, $\bar{E}_\gamma \approx$ 220 GeV
$<1.8 \times 10^{-5}$	90		ITALA	96 E791	$\pi^- N$ 500 GeV
$<2.2 \times 10^{-4}$	90	0	KODAMA	95 E653	π^- emulsion 600 GeV
$<5.9 \times 10^{-3}$	90		WEIR	90B MRK2	$e^+ e^-$ 29 GeV
$<2.9 \times 10^{-3}$	90	36	HAAS	88 CLEO	$e^+ e^-$ 10 GeV

52 This ABAZOV 08D limit is for the $\mu^+ \mu^-$ mass in the continuum away from the $\phi(1020)$. See the next data block.

NODE=S031R54;LINKAGE=AB

$\Gamma(\pi^+ \phi, \phi \rightarrow \mu^+ \mu^-)/\Gamma_{\text{total}}$

Γ_{119}/Γ

This is *not* a test for the $\Delta C = 1$ weak neutral current, but leads to the $\pi^+ \mu^+ \mu^-$ final state.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$(1.8 \pm 0.5 \pm 0.6) \times 10^{-6}$		53 ABAZOV	08D D0	$p\bar{p}, E_{\text{cm}} = 1.96$ TeV	

53 This ABAZOV 08D value is consistent with the known $D^+ \rightarrow \phi \pi^+$ and $\phi \rightarrow \mu^+ \mu^-$ fractions.

NODE=S031R08
NODE=S031R08
NODE=S031R08

$\Gamma(\rho^+ \mu^+ \mu^-)/\Gamma_{\text{total}}$

Γ_{120}/Γ

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<5.6 \times 10^{-4}$	90	0	KODAMA	95 E653	π^- emulsion 600 GeV

NODE=S031B64
NODE=S031B64
NODE=S031B64

$\Gamma(K^+ e^+ e^-)/\Gamma_{\text{total}}$

Γ_{121}/Γ

Both quarks would have to change flavor for this decay to occur.

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<1.0 \times 10^{-6}$	90	-3.7 ± 4.4	LEES	11G BABR	$e^+ e^- \approx \gamma(4S)$

NODE=S031R73
NODE=S031R73
NODE=S031R73

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<3.0 \times 10^{-6}$	90	RUBIN	10 CLEO	$e^+ e^-$ at $\psi(3770)$
$<6.2 \times 10^{-6}$	90	HE	05A CLEO	See RUBIN 10
$<2.0 \times 10^{-4}$	90	ITALA	99G E791	$\pi^- N$ 500 GeV
$<2.0 \times 10^{-4}$	90	FRAZETTI	97B E687	γ Be, $\bar{E}_\gamma \approx$ 220 GeV
$<4.8 \times 10^{-3}$	90	WEIR	90B MRK2	$e^+ e^-$ 29 GeV

D^\pm CP-VIOLATING DECAY-RATE ASYMMETRIES

This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths.

$$A_{CP}(\mu^\pm \nu) \text{ in } D^+ \rightarrow \mu^+ \nu_\mu, D^- \rightarrow \mu^- \bar{\nu}_\mu$$

VALUE (%)	DOCUMENT ID	TECN	COMMENT
+8±8	EISENSTEIN 08	CLEO	$e^+ e^-$ at $\psi(3770)$

NODE=S031230

NODE=S031230

NODE=S031A05
NODE=S031A05

$$A_{CP}(K_S^0 \pi^\pm) \text{ in } D^\pm \rightarrow K_S^0 \pi^\pm$$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
-0.41 ± 0.09 OUR AVERAGE				

[(-0.54 ± 0.14)% OUR 2012 AVERAGE]

-0.363 ± 0.094 ± 0.067	1738k	54 KO	12A BELL	$e^+ e^- \approx \gamma(nS)$
-0.44 ± 0.13 ± 0.10	807k	DEL-AMO-SA..11H BABR	BABR	$e^+ e^- \approx \gamma(4S)$
-1.3 ± 0.7 ± 0.3	30k	MENDEZ	10 CLEO	$e^+ e^-$ at 3774 MeV
-1.6 ± 1.5 ± 0.9	10.6k	55 LINK	02B FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

-0.71 ± 0.19 ± 0.20		KO	10 BELL	See KO 12A
-0.6 ± 1.0 ± 0.3		DOBBS	07 CLEO	See MENDEZ 10

| 54 KO 12A finds that after subtracting the contribution due to $K^0 - \bar{K}^0$ mixing, the CP asymmetry due to the change of charm is $(-0.024 \pm 0.094 \pm 0.067)\%$, consistent with zero.

| 55 LINK 02B measures $N(D^+ \rightarrow K_S^0 \pi^+)/N(D^+ \rightarrow K^+ \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

$$A_{CP}(K^\mp 2\pi^\pm) \text{ in } D^+ \rightarrow K^+ 2\pi^+, D^- \rightarrow K^+ 2\pi^-$$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
-0.1 ± 0.4 ± 0.9	231k	MENDEZ	10 CLEO	$e^+ e^-$ at 3774 MeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

-0.5 ± 0.4 ± 0.9		DOBBS	07 CLEO	See MENDEZ 10
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NODE=S031A5;LINKAGE=KO

$$A_{CP}(K^\mp \pi^\pm \pi^\pm \pi^0) \text{ in } D^+ \rightarrow K^- \pi^+ \pi^+ \pi^0, D^- \rightarrow K^+ \pi^- \pi^- \pi^0$$

VALUE (%)	DOCUMENT ID	TECN	COMMENT
+1.0 ± 0.9 ± 0.9	DOBBS	07 CLEO	$e^+ e^-$ at $\psi(3770)$

NODE=S031A5;LINKAGE=A1

$$A_{CP}(K_S^0 \pi^\pm \pi^0) \text{ in } D^+ \rightarrow K_S^0 \pi^+ \pi^0, D^- \rightarrow K_S^0 \pi^- \pi^0$$

VALUE (%)	DOCUMENT ID	TECN	COMMENT
+0.3 ± 0.9 ± 0.3	DOBBS	07 CLEO	$e^+ e^-$ at $\psi(3770)$

NODE=S031A01

NODE=S031A01

$$A_{CP}(K_S^0 \pi^\pm \pi^+ \pi^-) \text{ in } D^+ \rightarrow K_S^0 \pi^+ \pi^+ \pi^-, D^- \rightarrow K_S^0 \pi^- \pi^- \pi^+$$

VALUE (%)	DOCUMENT ID	TECN	COMMENT
+0.1 ± 1.1 ± 0.6	DOBBS	07 CLEO	$e^+ e^-$ at $\psi(3770)$

NODE=S031A02

NODE=S031A02

$$A_{CP}(\pi^\pm \pi^0) \text{ in } D^\pm \rightarrow \pi^\pm \pi^0$$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
+2.9 ± 2.9 ± 0.3	2.6k	MENDEZ	10 CLEO	$e^+ e^-$ at 3774 MeV

NODE=S031A03

NODE=S031A03

$$A_{CP}(\pi^\pm \eta) \text{ in } D^\pm \rightarrow \pi^\pm \eta$$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
1.0 ± 1.5 OUR AVERAGE				Error includes scale factor of 1.4.
+1.74 ± 1.13 ± 0.19		WON	11 BELL	$e^+ e^- \approx \gamma(4S)$

NODE=S031A04

NODE=S031A04

$$A_{CP}(\pi^\pm \eta'(958)) \text{ in } D^\pm \rightarrow \pi^\pm \eta'(958)$$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
-0.5 ± 1.2 OUR AVERAGE				Error includes scale factor of 1.1.
-0.12 ± 1.12 ± 0.17		WON	11 BELL	$e^+ e^- \approx \gamma(4S)$

NODE=S031A13

NODE=S031A13

-4.0 ± 3.4 ± 0.3	1.0k	MENDEZ	10 CLEO	$e^+ e^-$ at 3774 MeV
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NODE=S031A11

NODE=S031A11

NODE=S031A12

NODE=S031A12

$A_{CP}(K_S^0 K^\pm)$ in $D^\pm \rightarrow K_S^0 K^\pm$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
-----------	------	-------------	------	---------

-0.23±0.31 OUR AVERAGE

[(-0.1 ± 0.6)% OUR 2012 AVERAGE]

-0.25±0.28±0.14	277k	56 KO	13 BELL	$e^+ e^-$ at $\Upsilon(nS)$
-0.2 ± 1.5 ± 0.9	5.2k	MENDEZ	10 CLEO	$e^+ e^-$ at 3774 MeV
+7.1 ± 6.1 ± 1.2	949	57 LINK	02B FOCS	γ nucleus, $\bar{E}_\gamma \approx 180$ GeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

-0.16±0.58±0.25	KO	10 BELL	$e^+ e^- \approx \Upsilon(4S)$
+6.9 ± 6.0 ± 1.5	949	58 LINK	02B FOCS γ nucleus, $\bar{E}_\gamma \approx 180$ GeV

56 KO 13 finds that after subtracting the contribution due to $K^0 - \bar{K}^0$ mixing, the CP asymmetry is $(+0.08 \pm 0.28 \pm 0.14)\%$.

57 LINK 02B measures $N(D^+ \rightarrow K_S^0 K^+)/N(D^+ \rightarrow K_S^0 \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

58 LINK 02B measures $N(D^+ \rightarrow K_S^0 K^+)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

$A_{CP}(K^+ K^- \pi^\pm)$ in $D^\pm \rightarrow K^+ K^- \pi^\pm$

See also AAIJ 11G for a search for CP asymmetry in the $D^\pm \rightarrow K^+ K^- \pi^\pm$ Dalitz plots using 370k decays and four different binning schemes. No evidence for CP asymmetry was found.

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
-----------	------	-------------	------	---------

0.3 ± 0.6 OUR AVERAGE

-0.03±0.84±0.29	RUBIN	08 CLEO	$e^+ e^-$, 3774 MeV
-0.1 ± 1.5 ± 0.8	DOBBS	07 CLEO	$e^+ e^-$ at $\psi(3770)$
+1.4 ± 1.0 ± 0.8	43k±321	59 AUBERT	05S BABR $e^+ e^- \approx \Upsilon(4S)$
+0.6 ± 1.1 ± 0.5	14k	60 LINK	00B FOCS
-1.4 ± 2.9		60 AITALA	97B E791 $-0.062 < A_{CP} < +0.034$ (90% CL)
-3.1 ± 6.8		60 FRABETTI	94I E687 $-0.14 < A_{CP} < +0.081$ (90% CL)

59 AUBERT 05S measures $N(D^+ \rightarrow K^+ K^- \pi^+)/N(D_s^+ \rightarrow K^+ K^- \pi^+)$, the ratio of the numbers of events observed, and similarly for the D^- .

60 FRABETTI 94I, AITALA 98C, and LINK 00B measure $N(D^+ \rightarrow K^- K^+ \pi^+)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

$A_{CP}(K^\pm K^{*0})$ in $D^+ \rightarrow K^+ \bar{K}^{*0}$, $D^- \rightarrow K^- K^{*0}$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
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0.1± 1.3 OUR AVERAGE

- 0.4 ± 2.0±0.6	RUBIN	08 CLEO	Fit-fraction asymmetry
+ 0.9 ± 1.7±0.7	61 AUBERT	05S BABR	$e^+ e^- \approx \Upsilon(4S)$
- 1.0 ± 5.0	62 AITALA	97B E791	$-0.092 < A_{CP} < +0.072$ (90% CL)
-12 ± 13	62 FRABETTI	94I E687	$-0.33 < A_{CP} < +0.094$ (90% CL)

61 AUBERT 05S measures $N(D^+ \rightarrow K^+ \bar{K}^{*0})/N(D_s^+ \rightarrow K^+ K^- \pi^+)$, the ratio of the numbers of events observed, and similarly for the D^- .

62 FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow K^+ \bar{K}^*(892)^0)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

$A_{CP}(\phi\pi^\pm)$ in $D^\pm \rightarrow \phi\pi^\pm$

VALUE (%)	EVTS	DOCUMENT ID	TECN	COMMENT
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0.42±0.28 OUR AVERAGE

+0.51±0.28±0.05	237k	STARIC	12 BELL	Mainly at $\Upsilon(4S)$
-1.8 ± 1.6 ± 0.2	RUBIN	08 CLEO		Fit-fraction asymmetry
+0.2 ± 1.5 ± 0.6	10k±136	63 AUBERT	05S BABR	$e^+ e^- \approx \Upsilon(4S)$
-2.8 ± 3.6		64 AITALA	97B E791	$-0.087 < A_{CP} < +0.031$ (90% CL)
+6.6 ± 8.6		64 FRABETTI	94I E687	$-0.075 < A_{CP} < +0.21$ (90% CL)

63 AUBERT 05S measures $N(D^+ \rightarrow \phi\pi^+)/N(D_s^+ \rightarrow K^+ K^- \pi^+)$, the ratio of the numbers of events observed, and similarly for the D^- .

64 FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow \phi\pi^+)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .

NODE=S031A6

NODE=S031A6

NEW

OCCUR=2

NODE=S031A6;LINKAGE=KO

NODE=S031A6;LINKAGE=A2

NODE=S031A6;LINKAGE=A3

NODE=S031A1

NODE=S031A1

NODE=S031A1

NODE=S031A2;LINKAGE=AU

NODE=S031A1;LINKAGE=A

NODE=S031A2

NODE=S031A2

NODE=S031A2;LINKAGE=AU

NODE=S031A2;LINKAGE=A

NODE=S031A3

NODE=S031A3

NODE=S031A3;LINKAGE=AU

NODE=S031A3;LINKAGE=A

$A_{CP}(K^\pm K_0^*(1430)^0)$ in $D^+ \rightarrow K^+ \bar{K}_0^*(1430)^0$, $D^- \rightarrow K^- K_0^*(1430)^0$	DOCUMENT ID	TECN	COMMENT	NODE=S031A06 NODE=S031A06	
+8±6+4 -2	RUBIN 08	CLEO	Fit-fraction asymmetry		
$A_{CP}(K^\pm K_2^*(1430)^0)$ in $D^+ \rightarrow K^+ \bar{K}_2^*(1430)^0$, $D^- \rightarrow K^- K_2^*(1430)^0$	DOCUMENT ID	TECN	COMMENT	NODE=S031A07 NODE=S031A07	
+43±19+5 -18	RUBIN 08	CLEO	Fit-fraction asymmetry		
$A_{CP}(K^\pm K_0^*(800))$ in $D^+ \rightarrow K^+ \bar{K}_0^*(800)$, $D^- \rightarrow K^- K_0^*(800)$	DOCUMENT ID	TECN	COMMENT	NODE=S031A08 NODE=S031A08	
-12±11+14 -6	RUBIN 08	CLEO	Fit-fraction asymmetry		
$A_{CP}(a_0(1450)^0 \pi^\pm)$ in $D^\pm \rightarrow a_0(1450)^0 \pi^\pm$	DOCUMENT ID	TECN	COMMENT	NODE=S031A09 NODE=S031A09	
-19±12+8 -11	RUBIN 08	CLEO	Fit-fraction asymmetry		
$A_{CP}(\phi(1680)\pi^\pm)$ in $D^\pm \rightarrow \phi(1680)\pi^\pm$	DOCUMENT ID	TECN	COMMENT	NODE=S031A10 NODE=S031A10	
-9±22±14	RUBIN 08	CLEO	Fit-fraction asymmetry		
$A_{CP}(\pi^+ \pi^- \pi^\pm)$ in $D^\pm \rightarrow \pi^+ \pi^- \pi^\pm$	DOCUMENT ID	TECN	COMMENT	NODE=S031A4 NODE=S031A4	
-1.7±4.2	65 AITALA 97B E791	-0.086 < A_{CP} < +0.052 (90% CL)			
65 AITALA 97B measure $N(D^+ \rightarrow \pi^+ \pi^- \pi^+) / N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^- .					
$A_{CP}(K_S^0 K^\pm \pi^+ \pi^-)$ in $D^\pm \rightarrow K_S^0 K^\pm \pi^+ \pi^-$	EVTS	DOCUMENT ID	TECN	COMMENT	NODE=S031CPK NODE=S031CPK
-4.2±6.4±2.2	523 ± 32	LINK	05E FOCS	γ A, $E_\gamma \approx 180$ GeV	
$A_{CP}(K^\pm \pi^0)$ in $D^\pm \rightarrow K^\pm \pi^0$	EVTS	DOCUMENT ID	TECN	COMMENT	NODE=S031A14 NODE=S031A14
-3.5±10.7±0.9	343 ± 37	MENDEZ 10	CLEO	$e^+ e^-$ at 3774 MeV	
$D^+ - D^- T$-VIOLATING DECAY-RATE ASYMMETRIES					
$A_{Tviol}(K_S^0 K^\pm \pi^+ \pi^-)$ in $D^\pm \rightarrow K_S^0 K^\pm \pi^+ \pi^-$	EVTS	DOCUMENT ID	TECN	COMMENT	NODE=S031242
-12.0±10.0± 4.6	21.2 ± 0.4k	LEES 11E BABR	$e^+ e^- \approx \gamma(4S)$		NODE=S031TV0 NODE=S031TV0
• • • We do not use the following data for averages, fits, limits, etc. • • •					
23 ± 62 ± 22	523 ± 32	LINK	05E FOCS	γ A, $E_\gamma \approx 180$ GeV	NODE=S031TV0
$D^+ \rightarrow (\bar{K}^0/\pi^0/\eta/\bar{K}^{*0})\ell^+ \nu_\ell$ FORM FACTORS					NODE=S031250
$f_+(0) V_{cs} $ in $D^+ \rightarrow \bar{K}^0 \ell^+ \nu_\ell$	DOCUMENT ID	TECN	COMMENT	NODE=S031FK0 NODE=S031FK0	
0.707±0.010±0.009	BESSON 09	CLEO	$\bar{K}^0 e^+ \nu_e$ 3-parameter fit		
$r_1 \equiv a_1/a_0$ in $D^+ \rightarrow \bar{K}^0 \ell^+ \nu_\ell$	DOCUMENT ID	TECN	COMMENT	NODE=S031FK1 NODE=S031FK1	
-1.66±0.44±0.10	BESSON 09	CLEO	$\bar{K}^0 e^+ \nu_e$ 3-parameter fit		

$$r_2 \equiv a_2/a_0 \text{ in } D^+ \rightarrow \bar{K}^0 \ell^+ \nu_\ell$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$-14 \pm 11 \pm 1$	BESSON 09	CLEO	$\bar{K}^0 e^+ \nu_e$ 3-parameter fit

NODE=S031FK2
NODE=S031FK2

$$f_+(0)|V_{cd}| \text{ in } D^+ \rightarrow \pi^0 \ell^+ \nu_\ell$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$0.146 \pm 0.007 \pm 0.002$	BESSON 09	CLEO	$\pi^0 e^+ \nu_e$ 3-parameter fit

NODE=S031FP0
NODE=S031FP0

$$r_1 \equiv a_1/a_0 \text{ in } D^+ \rightarrow \pi^0 \ell^+ \nu_\ell$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$-1.37 \pm 0.88 \pm 0.24$	BESSON 09	CLEO	$\pi^0 e^+ \nu_e$ 3-parameter fit

NODE=S031FP1
NODE=S031FP1

$$r_2 \equiv a_2/a_0 \text{ in } D^+ \rightarrow \pi^0 \ell^+ \nu_\ell$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$-4 \pm 5 \pm 1$	BESSON 09	CLEO	$\pi^0 e^+ \nu_e$ 3-parameter fit

NODE=S031FP2
NODE=S031FP2

$$f_+(0)|V_{cd}| \text{ in } D^+ \rightarrow \eta e^+ \nu_e$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$0.086 \pm 0.006 \pm 0.001$	YELTON 11	CLEO	z expansion

NODE=S031FE0
NODE=S031FE0

$$r_1 \equiv a_1/a_0 \text{ in } D^+ \rightarrow \eta e^+ \nu_e$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$-1.83 \pm 2.23 \pm 0.28$	YELTON 11	CLEO	z expansion

NODE=S031FE1
NODE=S031FE1

$$r_v \equiv V(0)/A_1(0) \text{ in } D^+ \rightarrow \bar{K}^*(892)^0 \ell^+ \nu_\ell$$

See also BRIERE 10 for $\bar{K}^* \ell^+ \nu_\ell$ helicity-basis form-factor measurements.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1.51 ± 0.07 OUR AVERAGE				Error includes scale factor of 2.2. See the ideogram below.
1.463 ± 0.017 ± 0.031	66	DEL-AMO-SA...11I	BABR	
1.504 ± 0.057 ± 0.039	15k	LINK	FOCS	$\bar{K}^*(892)^0 \mu^+ \nu_\mu$
$1.45 \pm 0.23 \pm 0.07$	763	ADAMOVICH	99	$\bar{K}^*(892)^0 \mu^+ \nu_\mu$
$1.90 \pm 0.11 \pm 0.09$	3000	AITALA	98B	$\bar{K}^*(892)^0 e^+ \nu_e$
$1.84 \pm 0.11 \pm 0.09$	3034	AITALA	98F	$\bar{K}^*(892)^0 \mu^+ \nu_\mu$
$1.74 \pm 0.27 \pm 0.28$	874	FRABETTI	93E	$\bar{K}^*(892)^0 \mu^+ \nu_\mu$
$2.00^{+0.34}_{-0.32} \pm 0.16$	305	KODAMA	E653	$\bar{K}^*(892)^0 \mu^+ \nu_\mu$

NODE=S031FRV
NODE=S031FRV
NODE=S031FRV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$$2.0 \pm 0.6 \pm 0.3 \quad 183 \quad \text{ANJOS} \quad 90E \quad E691 \quad \bar{K}^*(892)^0 e^+ \nu_e$$

66 DEL-AMO-SANCHEZ 11I finds the pole mass $m_A = (2.63 \pm 0.10 \pm 0.13)$ GeV (m_V is fixed at 2 GeV).

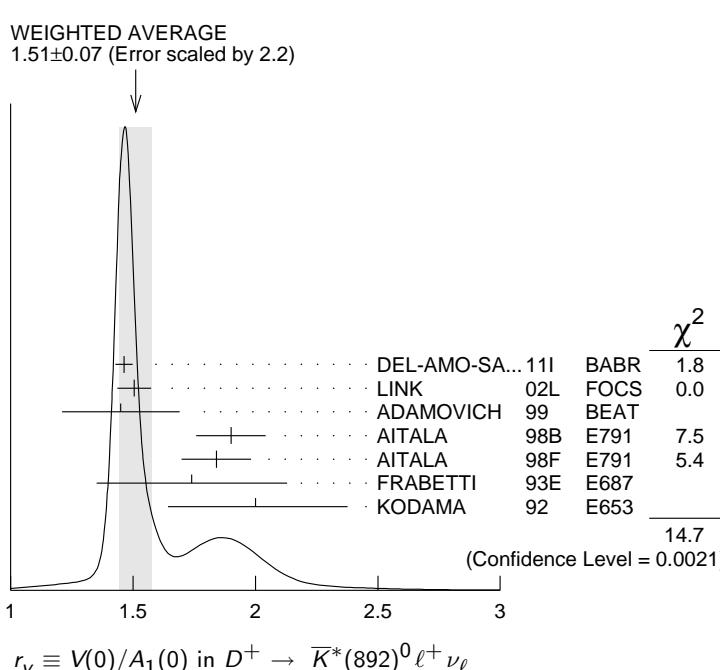
NODE=S031FRV;LINKAGE=DE

67 LINK 02L includes the effects of interference with an S -wave background. This much improves the goodness of fit, but does not much shift the values of the form factors.

NODE=S031FRV;LINKAGE=LL

68 This is slightly different from the AITALA 98B value: see ref. [5] in AITALA 98F.

NODE=S031FRV;LINKAGE=A



ALBRECHT	92F	PL B278 202	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=41987
ANJOS	92C	PR D46 1941	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=42102
BARLAG	92C	ZPHY C55 383	S. Barlag <i>et al.</i>	(ACCMOR Collab.)	REFID=42202
Also		ZPHY C48 29	S. Barlag <i>et al.</i>	(ACCMOR Collab.)	REFID=41313
COFFMAN	92B	PR D45 2196	D.M. Coffman <i>et al.</i>	(Mark III Collab.)	REFID=41921
DAOUDI	92	PR D45 3965	M. Daoudi <i>et al.</i>	(CLEO Collab.)	REFID=41616
KODAMA	92	PL B274 246	K. Kodama <i>et al.</i>	(FNAL E653 Collab.)	REFID=42047
KODAMA	92C	PL B286 187	K. Kodama <i>et al.</i>	(FNAL E653 Collab.)	REFID=42123
ADAMOVICH	91	PL B268 142	M.I. Adamovich <i>et al.</i>	(WA82 Collab.)	REFID=41626
ALBRECHT	91	PL B255 634	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=41443
ALVAREZ	91B	ZPHY C50 11	M.P. Alvarez <i>et al.</i>	(CERN NA14/2 Collab.)	REFID=41498
AMMAR	91	PR D44 3383	R. Ammar <i>et al.</i>	(CLEO Collab.)	REFID=41847
BAI	91	PRL 66 1011	Z. Bai <i>et al.</i>	(Mark III Collab.)	REFID=41470
COFFMAN	91	PL B263 135	D.M. Coffman <i>et al.</i>	(Mark III Collab.)	REFID=41541
FRABETTI	91	PL B263 584	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)	REFID=41570
ALVAREZ	90	ZPHY C47 539	M.P. Alvarez <i>et al.</i>	(CERN NA14/2 Collab.)	REFID=41311
ANJOS	90C	PR D41 2705	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=41250
ANJOS	90D	PR D42 2414	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=41309
ANJOS	90E	PRL 65 2630	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=41396
BARLAG	90C	ZPHY C46 563	S. Barlag <i>et al.</i>	(ACCMOR Collab.)	REFID=41097
WEIR	90B	PR D41 1384	A.J. Weir <i>et al.</i>	(Mark II Collab.)	REFID=41242
ANJOS	89	PRL 62 125	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=40625
ANJOS	89B	PRL 62 722	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=40630
ANJOS	89E	PL B223 267	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)	REFID=40770
ADLER	88C	PRL 60 89	J. Adler <i>et al.</i>	(Mark III Collab.)	REFID=40361
ALBRECHT	88I	PL B210 267	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=40653
HAAS	88	PRL 60 1614	P. Haas <i>et al.</i>	(CLEO Collab.)	REFID=40601
ONG	88	PRL 60 2587	R.A. Ong <i>et al.</i>	(Mark II Collab.)	REFID=40607
RAAB	88	PR D37 2391	J.R. Raab <i>et al.</i>	(FNAL E691 Collab.)	REFID=40355
ADAMOVICH	87	EPL 4 887	M.I. Adamovich <i>et al.</i>	(Photon Emulsion Collab.)	REFID=40292
ADLER	87	PL B196 107	J. Adler <i>et al.</i>	(Mark III Collab.)	REFID=40357
BARTEL	87	ZPHY C33 339	W. Bartel <i>et al.</i>	(JADE Collab.)	REFID=40359
BALTRUSAIT...	86E	PRL 56 2140	R.M. Baltrusaitis <i>et al.</i>	(Mark III Collab.)	REFID=11477
BALTRUSAIT...	85B	PRL 54 1976	R.M. Baltrusaitis <i>et al.</i>	(Mark III Collab.)	REFID=11471
BALTRUSAIT...	85E	PRL 55 150	R.M. Baltrusaitis <i>et al.</i>	(Mark III Collab.)	REFID=11472
BARTEL	85J	PL 163B 277	W. Bartel <i>et al.</i>	(JADE Collab.)	REFID=11473
ADAMOVICH	84	PL 140B 119	M.I. Adamovich <i>et al.</i>	(CERN WA58 Collab.)	REFID=11462
ALTHOFF	84G	ZPHY C22 219	M. Althoff <i>et al.</i>	(TASSO Collab.)	REFID=11464
DERRICK	84	PRL 53 1971	M. Derrick <i>et al.</i>	(HRS Collab.)	REFID=11467
SCHINDLER	81	PR D24 78	R.H. Schindler <i>et al.</i>	(Mark II Collab.)	REFID=11453
TRILLING	81	PRPL 75 57	G.H. Trilling	(LBL, UCB) J	REFID=11483
ZHOLENTZ	80	PL 96B 214	A.A. Zholents <i>et al.</i>	(NOVO) J	REFID=10320
Also		SJNP 34 814	A.A. Zholents <i>et al.</i>	(NOVO)	REFID=10321
		Translated from YAF 34 1471.			
GOLDHABER	77	PL 69B 503	G. Goldhaber <i>et al.</i>	(Mark I Collab.)	REFID=11434
PERUZZI	77	PRL 39 1301	I. Peruzzi <i>et al.</i>	(LGW Collab.)	REFID=11435
PICCOLO	77	PL 70B 260	M. Piccolo <i>et al.</i>	(Mark I Collab.)	REFID=11436
PERUZZI	76	PRL 37 569	I. Peruzzi <i>et al.</i>	(Mark I Collab.)	REFID=11431

OTHER RELATED PAPERS

RICHMAN	95	RMP 67 893	J.D. Richman, P.R. Burchat	(UCSB, STAN)	REFID=44678
ROSNER	95	CNPP 21 369	J. Rosner	(CHIC)	REFID=44566
